

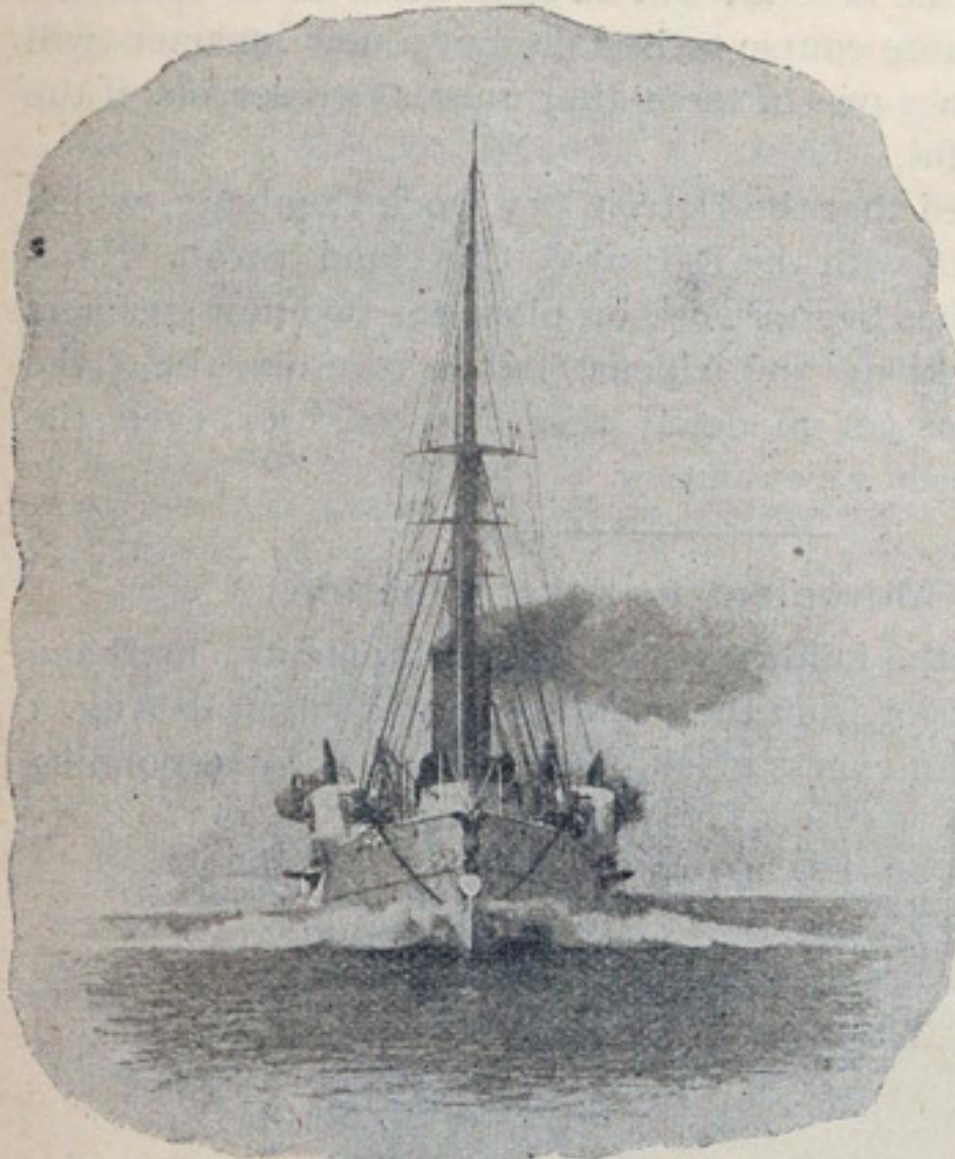
MARINE REVIEW.

VOL. VI.

CLEVELAND, OHIO, THURSDAY, AUGUST 11, 1892.

No. 6.

War Vessels Built by the Cramps.



UNITED STATES CRUISER YORKTOWN.

has a water frontage of 1,229 feet. The works employ 3,500 men, having under construction at present a total tonnage of 43,696. The total value of ships under construction is \$14,526,000. The horse power of marine engines under construction is 76,000 and of land engines 25,000. It is interesting to note that the windlasses and capstans on all these five war ships were furnished by the American Ship Windlass Company.

Full Statement of Iron Ore Shipments.

Within the past week the iron ore dealers of Cleveland and others directly interested in the traffic have been furnished with a detailed statement of shipments of ore from the different upper lake ports. Two or three of the dock managers object, however, to a statement of shipments by ranges and ports being given out, and it is enough to say here that the total shipments from all Lake Superior mines to Aug. 1 is 4,085,577 gross tons. Following is a comparison for the past three years:

	To Aug. 1, gross tons.	Full season, gross tons.
1892.....	4,085,577	.....
1891	2,718,938	7,011,933
1890.....	4,033,000	9,003,701

From this statement it will be seen that the shipments on Aug. 1 of this year are 52,577 tons in excess of the shipments on the corresponding date in 1890, the season when more than 9,000,000 tons of ore was produced in the Lake Superior region; or putting it in another way the shipments to Aug. 1 this year are greater than they have been on the same date in any year within the history of the lake ore trade. Clear docks and an early opening of navigation with a fair range of lake freight rates have had more to do with this heavy movement of ore than the conditions that have prevailed since April last in the iron market. Producers say the movement will be greatly reduced during the remainder of the season. It is not expected that the full season's shipments will reach the 1890 total of nine millions, but notwithstanding the surprise caused by the large gain so far over previous years, it is well known that at both Escanaba and Ashland for three weeks past the supply of tonnage has been very much short of the stocks of ore crowding the different docks.

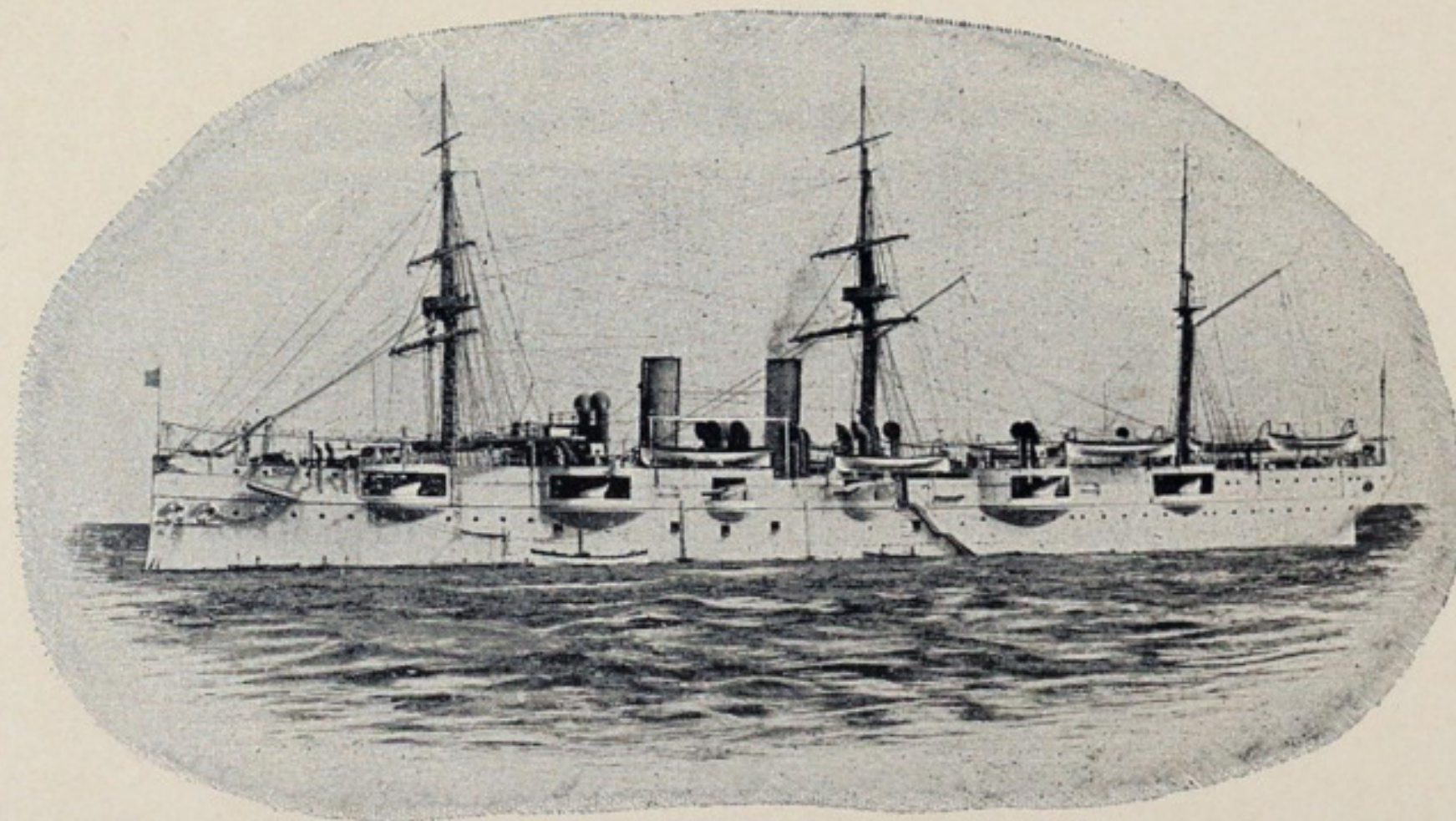
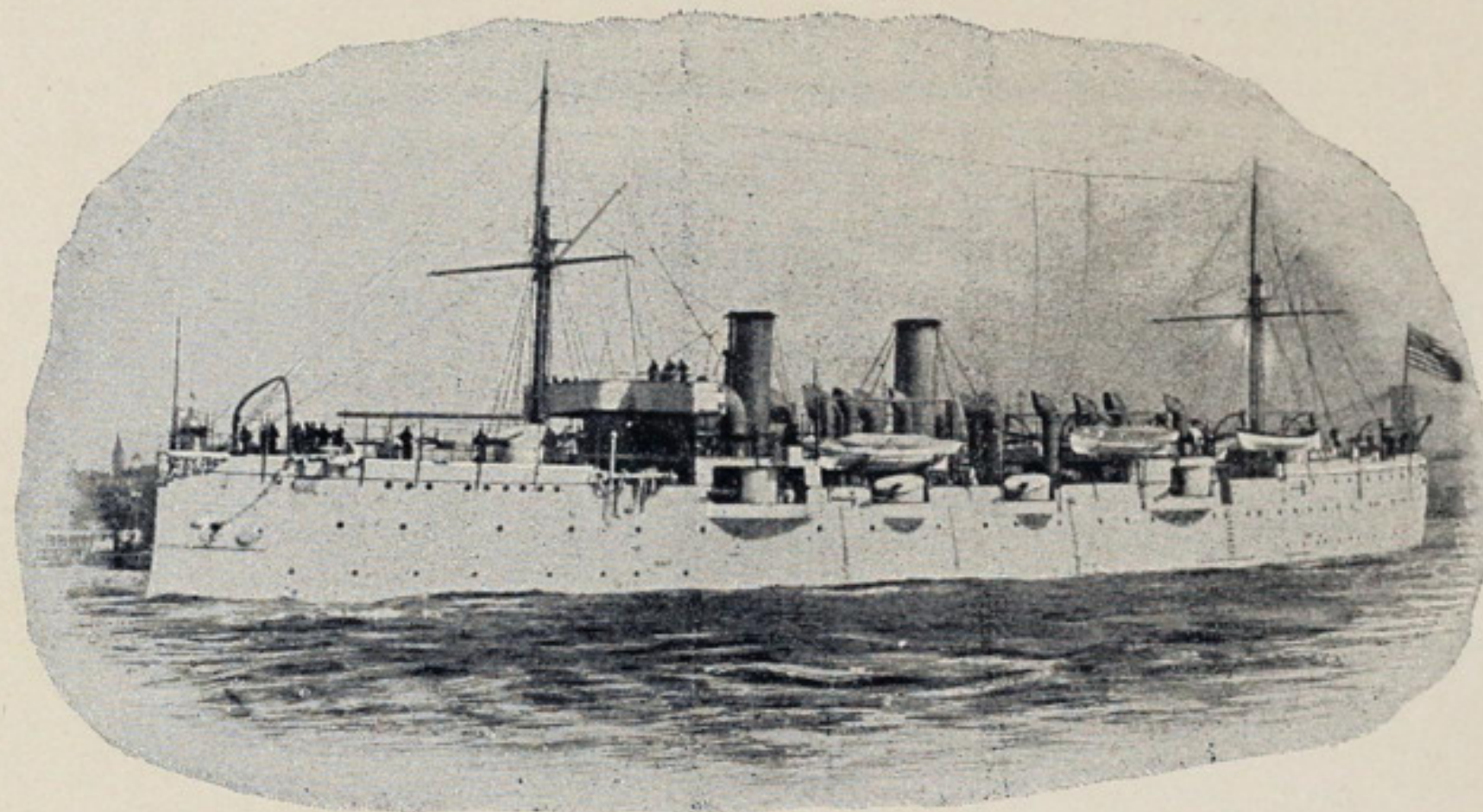
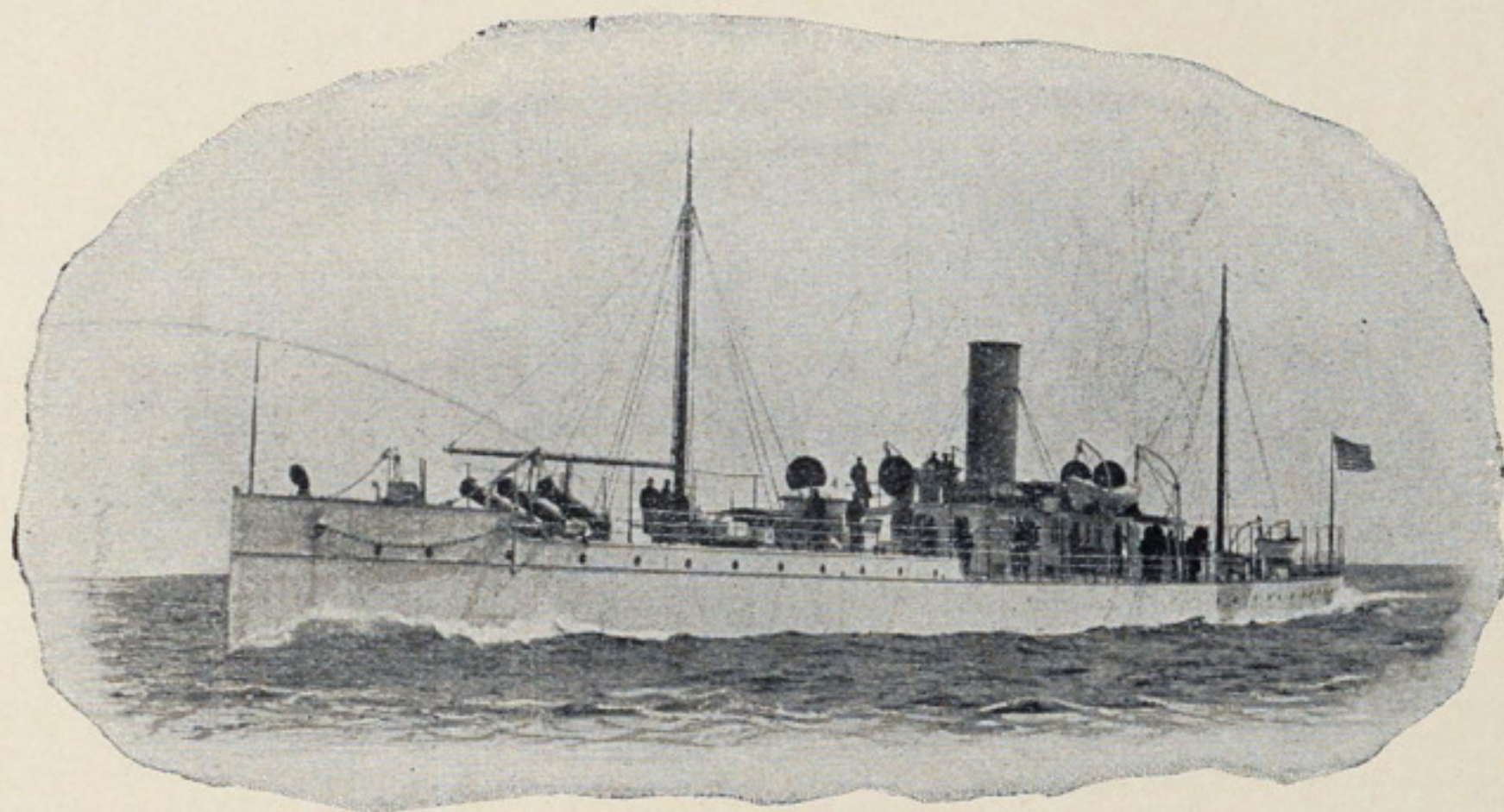
Largest Rudder Frames Ever Forged.

Mention of the size of the rudder of the French iron clad Brennus in the last issue of the REVIEW brings to attention the fact that a larger frame was recently forged by the Cleveland City Forge and Iron Company. It was for cruiser No. 2, the New York, building by William Cramp & Sons. It was of solid wrought iron, the dimensions being as follows: Extreme height, 20 feet 5½ inches; extreme width, 14 feet 7 inches; thickness of blade, 44 inches; diameter of rudder stock, 19 inches; shipping weight of frame, 26,640 pounds. The French rudder was built up while this one was cast solid. In addition to this, the same company forged four other large rudders recently for Cramp & Sons—one for cruiser No. 12, formerly known as the Pirate, and now officially named the Columbia; one for cruiser No. 13, being a duplicate of the Pirate, not yet named, and one each for battleships Nos. 1 and 2, which are known as the Massachusetts and Indiana. Rudders for the battleships have not as yet been shipped but are about completed. Rudders for Nos. 12 and 13 are practically alike, the chief dimensions being height over all, 23 feet 3½ inches; extreme width, 12 feet 8 inches, extreme thickness of the blade, 19½ inches; diameter of rudder stock, 19½ inches; shipping weight of the frame, 27,270 pounds. The rudders for the battleships are also duplicates and are practically of the dimensions mentioned, except in thickness of blade and diameter of stock, which dimensions are less by about 3 inches, the weights being correspondingly less. It is quite certain that these are the largest rudders ever made in this country and it is doubtful if any wrought iron rudders have ever been made in any country of greater proportions.

Built to be Used as Cruisers.

It will be remembered that it was the object of the Cockran bill, which was passed a couple of months ago, and which granted American registry to steamships of over a certain tonnage, to grant American registry to two ships of the Inman line, the City of New York and the City of Paris. According to the description of these two vessels given by Senator Frye in reporting the bill in the senate, they were specially designed and built to be not only the finest passenger ships afloat and the safest, but also to be the most efficient commerce destroyers and cruisers. Besides their great speed they have a remarkable coal endurance, being capable of keeping at sea for seventy-two days and steaming ten knots, which are valuable qualifications for cruisers. They are already fitted for sixteen rifled cannon, and they were built under the inspection and according to the design of the British admiralty, to the end that they might be efficient cruisers. Their boilers and engines are divided into separate compartments, so that the steamers could never be disabled by the flooding of one or more compartments; their boilers are protected from ramming or from shot by the coal-bunkers on either side, in water-tight compartments, and their engines are protected in the same manner by water-tight compartments, which can be filled with any suitable material when being fitted as cruisers. Their rudders and steering gear are under water, and thus protected from shot. Senator Frye, said that at the time they were the only merchantmen afloat designed to meet all the above described important qualifications as cruisers, and they could escape from any war vessel, and could overtake and destroy any merchant ship afloat.—Bradstreets.

In being enabled to land iron ore from vessels onto the dock at its furnace doors the new company of Cleveland iron men who are about to rebuild the old Union Iron Works at Buffalo will have an advantage over competitors. Preparations are now being made for cutting a channel 90 feet wide and 15 feet deep from the Delaware and Hudson Canal Company's dock in Buffalo creek to the iron works.



Supplement to MARINE REVIEW, Cleveland, O.

Built by WM. CRAMP & SONS.

VESUVIUS.

BALTIMORE.

NEW SHIPS FOR THE NAVY.

PHILADELPHIA.

NEWARK.

Another Season of Active Building Operations.

As shown by estimates in the accompanying table, lake ship builders have already begun work on contracts for new vessels aggregating in capacity 30,800 gross tons, and involving an expenditure of \$2,050,000. These vessels are to be ready for the opening of navigation in 1893, and in most cases work on them is well advanced. With this large amount of work on hand, before some of the vessels contracted for last winter have left the ship yards, it is evident that the winter of 1892-93 will also be marked by active building operations. Following are the names of builders and owners, with estimates of capacity and value of the different vessels:

Builders.	Owners.	Estimated capacity, gross tons.	Estimated value.
F. W. Wheeler & Co., W. Bay City, Mich.	Mitchell Transportation Company, Cleveland, O.	2,700	\$225,000
F. W. Wheeler & Co., W. Bay City, Mich.	Hawgood & Avery Transit Co., Cleveland, O.	4,300	240,000
F. W. Wheeler & Co., W. Bay City, Mich.	D. C. Whitney, Detroit, Mich.	4,300	240,000
F. W. Wheeler & Co., W. Bay City, Mich.	Collin McLaughlin, Detroit, Mich.	*2,500	† 75,000
Detroit Dry Dock Co.	Eddy Brothers, Saginaw, Mich.	4,500	225,000
Detroit Dry Dock Co.	Western Transit Co., Buffalo, N. Y.	2,000	225,000
Cleveland Ship Building Co.	For Builders.	3,500	185,000
Chicago Ship Bldg. Co., Colehour, Ill.	Kelderhouse syndicate, Buffalo, N. Y.	3,000	175,000
James Davidson, West Bay City, Mich.	For Builders.	*2,000	† 60,000
Craig Ship Bldg. Co., Toledo, O.	Toledo, Ann Arbor & Northern Michigan R.R. Co., Toledo, O.	*1,000	200,000
Craig Ship Bldg. Co., Toledo, O.	Toledo, Ann Arbor & Northern Michigan R.R. Co., Toledo, O.	*1,000	200,000
		30,800	\$2,050,000

* Wooden vessels. † Sail vessels. All others steamers.

In addition to the contracts shown here, the Detroit Dry Dock Company has begun work on a costly ferry boat for service in the Straits of Mackinac, and it is more than probable that this company will also build two big passenger steamers for the Detroit & Cleveland Steam Navigation Company, to replace the City of Alpena and City of Mackinaw, just sold to a Cleveland company, for service between Buffalo and Cleveland. At the yard of the American Steel Barge Company, West Superior, the world's fair steamer will be built, and several keels for freight barges to be operated as in the past by the builders will undoubtedly be laid. Other important contracts, including the proposed passenger steamers for the Great Northern Railway, are receiving attention from managers of the different plants, and it is now probable that all yards will be full by the close of navigation.

The New Cleveland and Buffalo Line.

The Cleveland vessel owners who have just closed a bargain with the Detroit and Cleveland Steam Navigation Company for the steamers City of Alpena and City of Mackinaw, which are to go into service between Cleveland and Buffalo next season, agree to pay \$270,000 for the boats, \$100,000 of which will be in cash from the stockholders of the company and the balance secured through the issuance of bonds. The investors were brought together through the efforts of Mr. T. F. Newman, the Cleveland representative of the Detroit and Cleveland company, who will be general manager of the new line. Among the stockholders are M. A. Bradley, Capt. George Stone, T. F. Newman, William Chisholm, W. J. White, George W. Gardner, Harvey D. Goulder, E. S. Page, J. K. Bole, John J. Shipherd, R. L. Moody and John C. Fitzpatrick, all of Cleveland. With two or three exceptions these gentlemen are already largely interested in vessel property, and are acquainted with the history of freight and passenger business between Cleveland and Buffalo. They probably look upon the venture as an experiment to some extent, and there will be no great expenditure of money in the start, outside of that required in the purchase of the boats and the

acquisition of leases covering terminal facilities. The steamers, although low in the guards and not up to the present requirements of the Detroit and Cleveland company in its Lake Huron service, are known to have withstood some very heavy weather on that lake and will answer very well in a new line. They were built to run between Cleveland and Detroit, where there is only a few hours of probable exposure to heavy seas in crossing the lake, and on this account will be somewhat at a disadvantage in the long shore course to Buffalo, but a new steamer will undoubtedly replace one of them after one or two seasons if the venture is successful.

It is announced that the Detroit Dry Dock Company, which is closely connected with the Detroit & Cleveland Steam Navigation Company, has begun work on plans for two new steamers to replace the Mackinaw and Alpena next season on the Lake Huron route, but as yet no detail regarding cost or even the style of boat has been given out.

Coal Movement to Lake Superior.

As shown by the following table, coal shipments, hard and soft, to Lake Superior from the opening of navigation to Aug. 1 were 315,246 tons in excess of shipments on the corresponding date in 1891:

Months.	1892, net tons.	1891, net tons.
April	151,495	10,919
May	401,729	404,698
June	462,564	390,674
July	542,003	436,254
Total	1,557,791	1,242,545

The figures are taken from the monthly statements of St. Mary's Falls canal traffic. Although the hard and soft coal shipments are not separated, it is again evident that the great bulk of this gain is in soft coal, as the aggregate shipments of hard coal from Buffalo on August 1 to all upper lake ports was 1,162,100 tons, showing a gain of only 40,000 tons over shipments on the same date last year.

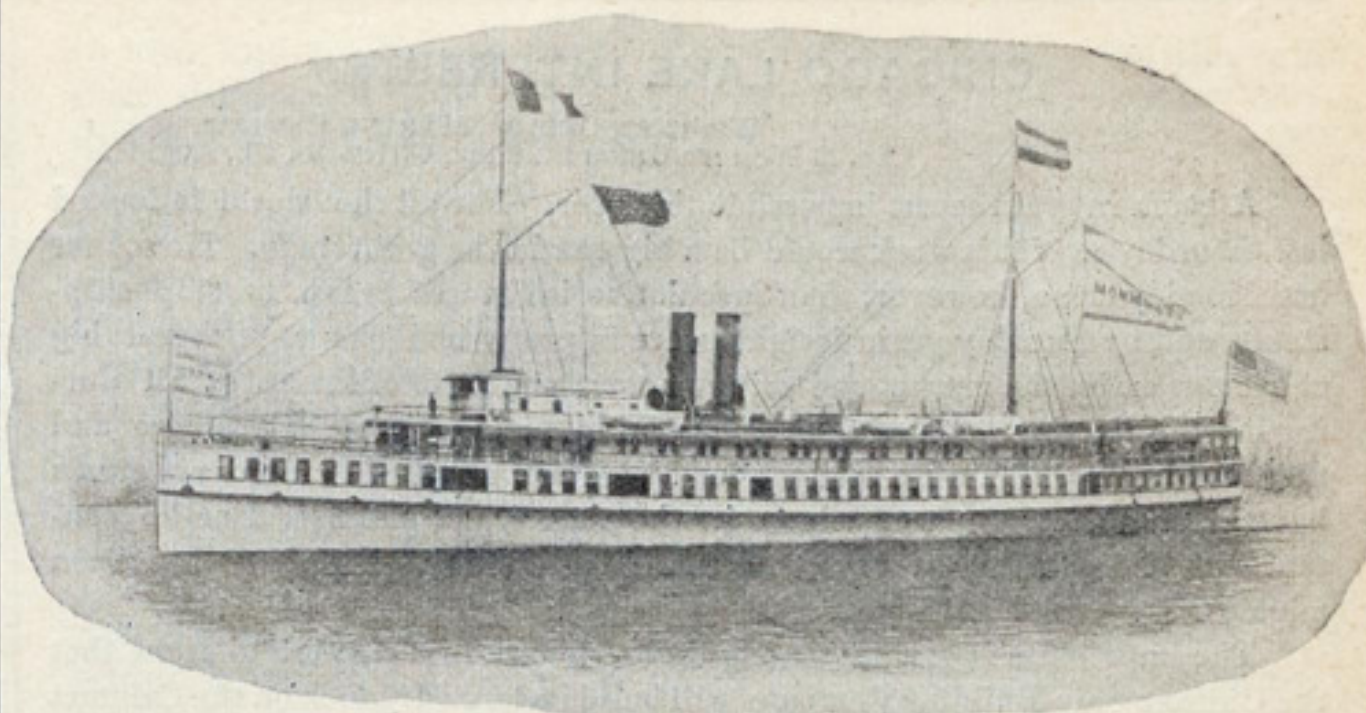
Lake Freight Matters.

Iron ore shipments are a little more than 52,000 tons ahead of any previous year in the history of the business. Coal shipments to Lake Superior alone are 315,246 tons in excess of shipments at this time a year ago. The movement of freight through the St. Mary's Falls canal during June was only a few tons short of two millions, and during every month since the opening the records of the corresponding months in previous years have been broken. These statements of facts will serve to show the immense volume of business on the lakes this season, and yet stocks of wheat and corn in Chicago are full 4,000,000 bushels larger than they were on the corresponding date a year ago, and ore shippers have not had up to the present week tonnage enough to move the ore accumulating at shipping ports. That the ore shipments will be reduced during the remaining portion of the season, there seems to be but little doubt now, however, and the question of fall freights is still very uncertain. Improvement in the iron market would undoubtedly cause a boom, but the more conservative shippers and owners are looking for only a moderate closing market. Ore rates are \$1.15 from Ashland and Two Harbors to Ohio ports, \$1.10 from the same ports to South Chicago, \$1 from Marquette and 80 cents from Escanaba to Ohio ports. There is no change of importance in the coal situation.

Messrs. Arthur Sewall & Co. of Bath, Me., are preparing the plans and specifications for the first iron sailing vessel ever built in Maine. She will be a four-masted vessel registering about 3,000 tons, 300 feet keel, 45 feet beam and 27 feet hold. Her masts will be of iron as well as the hull. This firm is putting its yard in condition for the building of iron vessels, and expects to lay the keel of the first ship early in the winter.

Long Island Sound and Lake Superior Steamers.

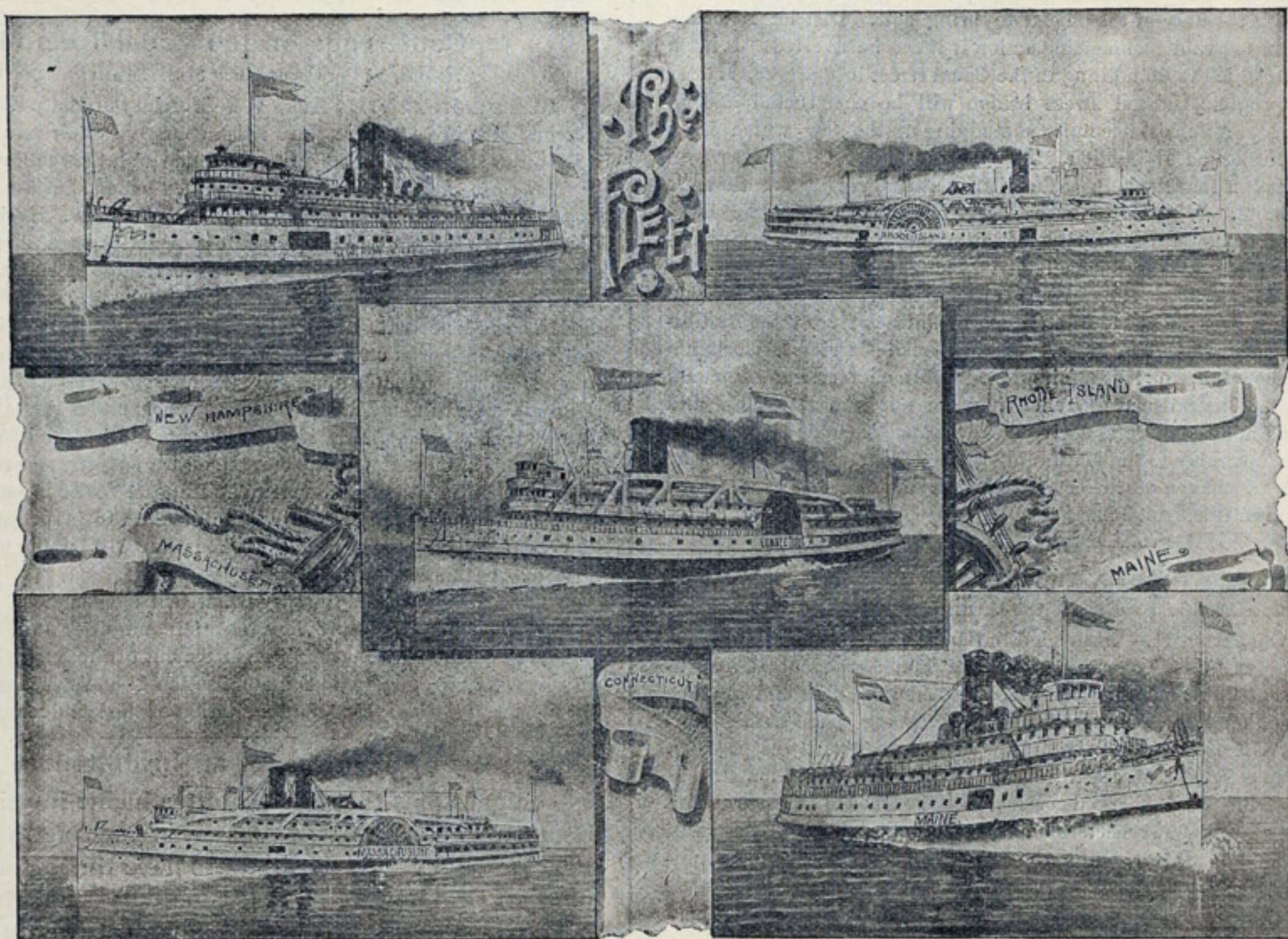
The new Long Island sound passenger boats Maine and New Hampshire of the Providence and Stonington line are screw steamers of light draft and high power, and for this reason some reliable information regarding them from the builders, the Harlan and Hollingsworth Company of Wilmington, Del., will be of interest in connection with the plans of James J. Hill of the Great Northern Railway Company for passenger boats to engage in the Lake Superior trade. It is understood that Mr. Hill wants two or more steamers 360 feet long, to carry 1,000 tons of freight in addition to having extensive passenger accommodations and to make 20 miles an hour. As the St. Mary's Falls canal draft is little more than 14 feet, average stage of water, the question of meeting such requirements is, of course, an important one. The size of wheel in the Long Island sound boats here referred to is $13\frac{1}{2}$ feet diameter and $18\frac{1}{2}$ feet pitch. It is very doubtful if a larger wheel could be applied to the proposed Lake Superior passenger boats, and yet the builders of the sound boats report that the best average speed made by them on trial was 18.46 miles. They add that since the engines have



SANDY HOOK STEAMER MONMOUTH.

if any freight. From this it will readily be seen that the problem of a 20-mile screw steamer for Lake Superior is by no means an easy one to handle.

Another fast passenger steamer that may be compared with the proposed Hill boats is the Monmouth, an engraving of which



LONG ISLAND SOUND PASSENGER STEAMERS.

worked down smooth, the owners of the Maine and New Hampshire claim that they make 20 miles an hour in slack water. Following are the dimensions of hull and machinery of the sound boats as reported by the builders:

Dimensions of hull.—Length between perpendiculars, 302 feet 7 inches; length over all, 310 feet; beam, moulded, 44 feet; beam, over guards, 60 feet; depth, moulded, $17\frac{1}{2}$ feet.

Machinery.—Single triple expansion (four cylinders) surface condensing engine. High pressure cylinder 28 inches, intermediate 45, first low pressure 51 and second low pressure 51 with 42 inches stroke common to all.

To make 18.46 miles an hour, the best average time of these boats on trial, the engines would be required, allowing 10 per cent. for slippage, to be turned at a speed of about ninety-five revolutions. Judging from the size of cylinders, the horse power in the sound boats is about 2,000. Now take one of the steel lake freight steamers of but about 1,000 horse power. They make at about seventy revolutions 14 miles an hour light and $12\frac{1}{2}$ miles loaded, and this notwithstanding their great fullness, as against the fine lines of the sound passenger steamers, which are intended for speed, and are expected to carry little

is also presented on this page. The Monmouth is owned by the Central Railroad company of New Jersey, and is in service between New York and Sandy Hook. She was built by the Cramps of Philadelphia, and is 270 feet 4 inches over all, 35 feet beam, and 15 feet 6 inches depth. The builders claim a speed of $18\frac{1}{2}$ knots, or about 21 miles an hour for this boat, but she has engines of 3,000 indicated horse power. The twin engines are triple expansion, with cylinders 19, 39 and 50 inches in diameter, 30 inches stroke of piston and make 165 revolutions. There are four boilers, 12 feet in diameter and 12 feet 5 inches long, having a working pressure of 160 pounds.

Mr. J. J. Hill was in Cleveland Tuesday accompanied by General Manager Gordon of the Northern Steamship Company. They spent the day in consultation with Vice-President Pankhurst of the Globe Iron Works Company. Mr. Hill is now satisfied to sacrifice freight space for speed and passenger accommodations in the proposed new Lake Superior boats, and although no contract has been let as yet, it is more than probable that one will be closed shortly. Mr. Pankhurst says that twin-screw steamers are now being considered and that their cost will be close to \$500,000 each.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 13 Western Union Building, CHICAGO, ILL., Aug. 11.

A boom in grain seems impossible this year. For all the world it looked last Saturday as if this week would be a big one in the grain trade. No sooner had Monday come, however, than speculative influences began to stop shipments, and by Tuesday grain freights were in pretty bad shape. Several big carriers were on the market and shippers were unable to talk rates at all during most of the day. Late in the afternoon by picking up small lots here and there the boats which were ready to load were all supplied. Most vesselmen have given up the prophet business for the season, and will hereafter be content with taking things as they come from day to day. Prophecy has been mighty risky work all this year.

The impression is general among those who are in a position to know that the Chicago Ship Building Company will build its large drydock on the Calumet the coming winter. While Manager Babcock disclaims that the matter was settled, yet from trustworthy information it can be stated that in all probability a dock will be built. Several big capitalists are interested in it in connection with the ship building company. As one of them expressed it the other day, the chances are about ten to one in favor of the dock.

Marine men think that they can get the United States district attorney here to bring suit against the city of Chicago to stop the construction of South Halsted street bridge. They base their belief upon the plain provisions of the law, which makes it the duty of the official to bring suit. District Attorney Milchrist is certain to avoid commencing action if it can be averted. It took him six months in which to do nothing in the Canal street bridge case, and at the same rate of progress Halsted street bridge will be constructed and in operation before Mr. Milchrist has finished studying up the law which is to guide him in securing an injunction. The marine interest might as well understand first as last that the help of the district attorney will give them is not worth the trouble. What ought to be done is quite plain. The Lake Carriers' Association should hire a competent attorney here and bring injunction proceedings against the city immediately. The question of bridges over Chicago river is not a local question by any means. Cleveland, Buffalo and Detroit vessel owners are really more interested in Chicago river than are Chicago vesselmen, outside of the tug lines. The old Lake Carriers Association took the ground that Chicago river affairs were local in character and it could not interfere here. The railroad propeller lines did not take this view and they spent several hundred dollars in giving the Saranac excursion last season, which resulted so favorably to the marine interest. It is to be hoped that the new organization has shaken off the conservatism of the old body, and will take speedy action in this bridge business.

St. Lawrence Canal Improvement.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Aug. 11.—Suspended in the canals department are plans and specifications for sections one and two of the Soulanges canal. The contract will be awarded this month. Three sections on the upper end are now under construction, and the appearance of the foregoing specifications indicate that the government intends pushing the work as vigorously as possible. The Soulanges route shows a practically straight canal, 14 miles in length, and in point of navigability it is in marked contrast with the crooked Beauharnois on the other side of the St. Lawrence. The construction of the Soulanges will complete the Canadian canal system on the St. Lawrence, and establish a uniform depth of 14 feet. Sections one and two constitute one of the largest canal contracts ever offered in Canada. The cost will be in the neighborhood of a million.

Oswego is making an effort in the elevator line. A movement is on foot there to erect an elevator with a capacity of 400,000 bushels, at a cost of nearly \$500,000. The material to be used will be iron and steel, and the structure will have two legs. It will be possible to load from twelve to eighteen cars simultaneously on the landward side. This announcement has lent fresh energy to the Kingston scheme. The minister of militia was in Kingston Saturday, when a deputation of the board of trade asked him for the Tete du Pont barracks as a site for an elevator. He replied that the government would seriously consider the matter.

Some steamers began running summer Sunday excursions this season, but they were not allowed to make more than two or three trips. The Evangelical Alliance notified the owners that unless the excursions were stopped writs would be issued and heavy fines inflicted. The result was that the boats laid up on Sundays. One of the steamers implicated was the Princess Louise. She is now down in 12 feet of water, having been run into by the tug Rescue, and almost cut in two at midships. She is owned by Capt. Rothwell.

When the City of Owen Sound went down in 110 feet of water in the Georgian Bay she was abandoned, the depth being considered too great for the operation of wreckers. She has been raised however, by Wm. Leslie, of Kingston, who used his patent iron pontoons in the work. These pontoons are 46 feet in length, and about ten feet in diameter, round, with cigar-shaped ends. They are divided into three compartments by watertight bulkheads, and are built of heavy steel plates, strengthened with longitudinal and cross braces. To prevent undue rolling the pontoons are built with bilge keels, and

have a well at each end, through which chains are brought up and effectively held by coggles. The lifting capacity of each pontoon is 100 tons. When the pontoons were first used on the steamer Armstrong the chains broke. They were then reduced to half the size and tried on the City of Owen Sound with great success. The plan of iron pontoons was advanced by Capt. J. S. Dunham of Chicago many years ago, but it remained for Mr. Leslie to put the theory into practice. Dozens of good lake boats lie within the depth of 100 feet of water, and if the new invention is the success it is claimed to be all these craft will be afloat again. Among these wrecks is the large steel steamer Brunswick, which lies in about 90 feet of water off Dunkirk, N. Y. The wooden steamer Smith Moore is in less than 100 feet off Marquette.

The Richelieu and Ontario company has given its new steamer Columbian, built by the Delaware River Ship Building Works, Chester, Pa., a test which proved very successful. The new boat is a steel twin screw of 702 tons burthen. Her lines are claimed to be perfect, and much finer than the lake propeller. She has all the elegance in the interior demanded by modern travel. There are two engines, one for each screw, each with an independent boiler to carry 160 pounds pressure. Her speed, however, is somewhat disappointing. It was expected she would go 17 miles per hour; if she covers 14 she will do well. The probabilities are that the company will add another steel steamer to their line next year. The Columbian will run between Kingston and Montreal. Several lake ship builders figured on this contract, and but for a misunderstanding as to draft it would have come to them.

Conference on the Canal Tolls Matter.

Special Correspondence to the MARINE REVIEW.

WASHINGTON, D. C., Aug. 11.—Secretary of State Foster has had a conference with Mr. Herbert, the British charge d'affaires, over the question of tolls on the Canadian canals, in connection with the retaliation measure passed by congress. The conference was quite extended, but the results, if any were reached, are carefully guarded. It is said that Mr. Herbert intimated that the discriminating tolls charged against American vessels for using the Canadian canals, while within the letter of the treaty between the two countries respecting the navigation of the canals and the St. Lawrence, was probably not in accordance with the spirit of the document. He disclaimed any knowledge of an intention on the part of the dominion government or that of the mother country to enter upon or to authorize a series of reprisals against the United States in case President Harrison acts under the terms of the new law. He probably recognized, if he did not admit, the disadvantage of such a course, as it would at once lead to the entire suspension of the greater part of the traffic of Canadian transcontinental lines. While President Harrison does not usually act precipitately in public matters, it is probable that whatever delay there may be in issuing a proclamation will be due to a consideration of interests on this side of the border.

The secretary of the treasury has issued a circular to customs officers in regard to yachts, which provides that "on and after Jan. 1, 1893, licenses for yachts will have inserted therein a statement of the length, breadth and depth, the gross tonnage, deductions under section 4153, revised statutes, as amended by the act of Aug. 5, 1882, and a citation of the last document.

Story of an Invention.

Suggestions that have led to valuable inventions have often been carelessly made. About seven years ago the captain of the steamer Ohio was very careful to have the fog signal blown regularly. In reply to the order one day the engineer asked what he would give if he made a machine that would blow the signal itself. "Whatever it costs" replied the doubting captain. Nothing more was said, but at odd moments the engineer kept punching away at a piece of boiler iron. Two years later the Ohio was loading at Ashtabula and she blew three whistles, and strangely too, no one pulled the cord. The captain came down the dock from up town, and wanted to know what the trouble was. The engineer said he was just trying that whistle machine. The captain brought a number of friends aboard to see it, and they all said it ought to be patented. The engineer said he would n't make another for any money, but he got it patented and he changed his mind; and now there are 150 of them on lake steamers. The original machine is still working on the Ohio. As the Ohio is a towing steamer, her fog signal is three blasts of the whistle. When a machine was ordered to blow one blast the engineer worked two whole weeks to accomplish it. He had n't figured on blowing one whistle when he was working at the first machine.

SEND 50 CENTS IN STAMPS TO THE MARINE REVIEW FOR TEN PHOTOTYPES AND GRAVURES OF LAKE STEAMERS NEATLY BOUND.

Record of Speed and Big Cargoes.

[Masters or owners are invited to report improvements on this list.]

Iron ore: Lake Michigan—Maryland, Inter-Ocean Transportation Company of Milwaukee, 3,663 gross, or 4,103 net tons, Escanaba to South Chicago, draft 17 feet 4 inches; Western Reserve, Peter Minch of Cleveland, 3,314 gross, or 3,717 net tons, Escanaba to Ashtabula.

Grain: E. C. Pope, Eddy Bros. of Bay City, 125,730 bushels of corn, Chicago to Buffalo, draft 14 feet 8 inches; Western Reserve, Peter Minch of Cleveland, 112,431 bushels of wheat, Chicago to Buffalo; W. H. Gilcher, J. C. Gilchrist of Cleveland, 114,982 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company.....	\$100 00	\$.....	\$ 70 00
Champion Iron Company.....	25 00	.....	.....
Chandler Iron Company.....	25 00	43 00	45 00
Jackson Iron Company.....	25 00	.....	100 00
Lake Superior Iron Company.....	25 00	43 00	45 00
Minnesota Iron Company.....	100 00	73 50	77 00
Pittsburgh & Lake Angeline Iron Co.....	25 00	.....	140 00
Republic Iron Company.....	25 00	.....	15 00
Ashland.....	25 00	.....	.....
Section Thirty-three.....	25 00	.....	7 50
Brotherton.....	25 00	2 00	2 50
Iron Belt.....	25 00	2 25	2 50
Aurora.....	25 00	8 25	.....

Stockholders of the Lake Superior Iron Company have just been furnished with copies of the annual report of the company for the year ending April 30, 1892. The gross receipts for the year, exclusive of sales of real estate, aggregated \$1,352,415.14, and the total expenses \$1,083,581.70. The net profits, after crediting the depreciation account with \$59,427.94, to offset reduction in valuation of two of the company's steamers, are placed at \$287,723.90. It will be seen that this does not represent the difference between receipts and expenses, but it may be explained by the system of book keeping. The profits are, however, not encouraging. They represent but about \$4 a share on the total of last year's shares of stock, and although \$6 a share was paid in dividends, \$2 of it was from earnings of previous years. A balance sheet of April 30, 1892, makes the following showing: Real estate and mining property, \$1,285,527.87; steamships (four), \$580,000; steamship building account (two steamers), \$200,178.26; iron ore, \$587,797.37; agents' inventory, \$48,123.68; notes and loans receivable, \$144,934.27; accounts receivable, \$15,193.99; cash, \$184,002.66; suspended debts, \$131.22; Mesnard Iron Company stock, \$100; Atlantic Iron Company stock, \$100; rents earned, \$200; interest balance favor of company, \$1,918.27; office furniture, \$300; steamship operating (new account), \$8,081.38; total, \$3,056,588.97. Notes and accounts payable, including taxes, pay roll, mine debt, etc., \$92,513.95; advance payments for ores undelivered, \$182,854.28; capital stock, \$1,800,000; new stock subscriptions, \$298,825; reserve guaranty, \$253,326.13; depreciation, \$416,940.83; profit and loss, \$12,128.78; total, \$3,056,588.97.

There was, of course, no truth in the story sent out from Duluth to the effect that the big mines of the Wisconsin Central syndicate, Gogebic range, are to be shut down. Cleveland representatives of the syndicate pronounce the statement entirely false. The most ridiculous part of the story was the claim that the mines were shutting down on account of the labor difficulties at Homestead. The Carnegie furnaces are being worked to full capacity, notwithstanding the mill trouble, and ore dealers who have contracts for these furnaces can not secure cars enough to forward the amount of ore required. One ore shipping firm in Cleveland is sending ore to the Carnegie furnaces at the rate of a cargo per day.

Shipments of iron ore from Two Harbors up to and including Wednesday, Aug. 3, aggregated 577,004 gross tons, of which 330,350 tons were from the Chandler, 244,973 tons from the Min-

nesota and 1,681 tons from the Pioneer mine. On the same date shipments from Ashland aggregated 1,132,914 gross tons, divided as follows: Ashland 98,776 tons, Aurora 166,173, Colby No. 2 29,988, Rand, 9,429, Tilden 139,096, Taylor 9,447, Globe-Ashland 1,851, Iron Belt 73,553, Montreal, north vein 19,108, Palms 30,565, Section 33, south vein 926, Section 33, north vein 2,259, Anvil 1,696, Brotherton 55,995, Bourne 10,574, Comet 14,686, Carey 13,102, East Norrie 110,199, Eureka 2,057, Newport 53,150, Norrie 216,288, Pabst 23,739, Odanah 1,286, Sunday Lake 33,849, Windsor 13,240, Imperial 2,446.

It is very probable that the big Norrie mine will again ship 1,000,000 tons of ore this season. The Norrie has already shipped 350,000 tons from Ashland, and if the Escanaba shipments were added it would probably be found that about half a million tons had been moved in all. This is great work for a single mine.

Leading stockholders in the Oliver Iron and Steel Company of Pittsburgh are reported to have made another lease of Mesaba mineral land. This time it is the property of the Mesaba Mountain Iron Company, and the royalty is said to be 65 cents a ton with \$75,000 of advance royalty paid down.

Officers of the new Duluth, Mesaba & Northern Railway are still claiming that they will ship ore this fall. About 14 miles of track has been laid and it is claimed that the iron is all on the ground.

An output of 600,000 tons is now predicted for the Chandler this season. About 125 cars a day are being loaded from stock piles and the mine output is about 100 cars daily.

Grain at Chicago and Duluth.

Stocks of grain at Chicago and Duluth on Monday, the 8th inst. were:

	Chicago.		Duluth.
	Wheat, bu.	Corn, bu.	All wheat, bu.
In store.....	4,387,565	3,809,350	2,849,025
Decrease last week.....	.....	202,775	.....
Increase last week.....	442,952	.....	45,502
Increase over same time last year	1,487,292	2,710,053	.....

In addition to the above there is 2,052,202 bushels of oats, 108,829 bushels of rye and 23,631 bushels of barley in store at Chicago.

The Cleveland Regatta.

The open regatta of the Cleveland yacht club will occur Aug. 16 and 17. Following are the prizes: Class A, 50 feet and over, \$60 and \$30; Class B, 40 feet and under 50, \$50 and \$25; Class C, 32 feet and under 40, \$40 and \$20; Class D, 25 feet and under 32, \$30 and \$15; Class E, under 25 feet, \$20 and \$10. A champion flag will also be given the winning yacht in each class. A trophy will also be given for the winner of the naphtha launch race. The course will be an equilateral triangle 6 miles on each side. The first leg will run due N. E. from the start, which will be between two stake boats set just outside the eastern extremity of the new breakwater; second leg W. by N. $\frac{1}{4}$ N.; third leg S. by E. $\frac{1}{4}$ E. Classes D and E will run to the N. E. stake and return, making a 12-mile course. Louis Sears, secretary, No. 9 Literary street, Cleveland, will furnish all particulars.

A Californian has completed drawings of a land ship, the purpose of which is to explore African wilds. It is made of aluminum. Plates below water line are an inch thick and above that 1-16 of an inch. The propelling and pulling power consists of two 24 horse power engines attached to a shaft extending from bow and stern. A chain gear operates the wheels used in traveling by land, and they are arranged to go over logs and rocks without difficulty. An 800-foot cable on a revolving drum can be brought into play in ascending a mountain. The ship can be run into the water and navigated without removing the wheels. When a supply of fuel is needed the propeller is taken off and a circular saw put on. By this means a large amount of wood is cut in a few moments. This saw can also be used in clearing jungles through which the ship may be called upon to navigate. The inventor has everything necessary to form a company except capital.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }
HOMER J. CARR, ... Associate Editor and Manager Chicago Office,
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ONLY one move of importance with reference to the Canadian canal tolls has occurred within the week. Secretary of State Foster called to a conference in Washington on Tuesday several representatives of shipping interests from different parts of the lakes. The object was to talk over the terms in which the proclamation of the president should be issued, under the joint resolution of congress relating to the discriminating tolls, should it become necessary to issue the proclamation by reason of the failure of the Canadian government to relieve American commerce from such discrimination. It was intended that the conference should be private, and it was so as far as its deliberations are concerned. It was reported after the meeting, however, that Secretary Foster is of the opinion that no international complications may be expected as a result of the passage of the retaliation act. He says that while the act would seem to call for some sort of proclamation from the President warning the Canadians of the retaliation which would result from future discrimination against American vessels in the matter of tolls through the Canadian canals, it is probable that when the matter is properly laid before the Canadian government the situation will be appreciated, and a satisfactory adjustment will ensue. The rumor from Ottawa that an order in council had been issued abolishing all canal rebates and placing grain transhipped at Ogdensburg and other American ports on an equal footing with transhipments from Kingston is officially declared to be premature, but such action is likely to be taken at a meeting of the Canadian cabinet to be held before the close of the present week.

NEW YORK is getting ready for a canal convention next fall and the Merchants Exchange of Buffalo makes a show of enthusiasm by voting \$500 for the expenses of the gathering and inviting business men to contribute to the fund. It is a case, though, of closing the barn door after the horse is out. With appropriations in the river and harbor bill of \$3,000,000 toward a deep water channel on the lakes and \$2,000,000 for the Hudson river, the time is ripe for vigorous action in the next congress regarding the bill for ascertaining the feasibility and cost of a ship canal from the great lakes to the Hudson river. The advocates of this project will not be found wanting in the next congress, as with every day of discussion pertaining to the great scheme there is evidence of its growing strength. Buffalo can not prevent action by the next congress with reference to a seaboard outlet for lake commerce and will have few sympathisers even in New York state for its little scheme of diverting attention from the present national movement by calling for a state gathering that can accomplish nothing in the way of canal improvement. New York is already restive under canal expenses. Cooperation with Canada in the St. Lawrence route may be sought by the general government, but in any event the question of a canal from the lakes to tidewater is one that must soon demand the attention of this entire country.

THERE will be a stated meeting of the light-house board on Sept. 5, and it may be that a special meeting will be called in advance of that date, when the restoration of the relieved district officers on the lakes, Col. Ludlow and Commander Heyerman, will be asked for. The recent action of four members of

the board in organizing themselves into an executive committee and giving partial approval to the action of the district officers, after having given Col. Ludlow a hearing, is proof of how these members may be expected to act at a full meeting. Secretary Foster is undoubtedly willing and anxious that justice be shown to the relieved officers, and the civilian members of the board, Professor Mendenhall of the coast survey and Col. Franklin of the Steelton Iron Works, Baltimore, may be expected to vote for reinstatement in a case where it is so plain that the board's action was based on a misapprehension of the facts.

EXACT figures on the commerce passing the city of Detroit in the Detroit river can not, on account of existing customs regulations, be secured this season any more than in past seasons, but it will be admitted by everybody who is informed regarding lake statistics that close to 30,000,000 tons of freight will be carried by water past this point during the eight months of navigation from April to December of this year. Consider first a ton weight and then a million of tons, or a million of dollars, or a million of anything, in fact, that will assist in comprehending the meaning of the term. It would take 2,600 years putting away a dollar a day to save a million dollars. Anyone engaged in the task would now find their work about at an end, if they had been born 700 years before the beginning of the Christian era. What a wonderful volume of freight, then, in this thirty millions carried in lake vessels during a single season.

RUMOR again has it that the owners of the City of Paris and City of New York, who agreed in the bill passed by Congress granting American register to these steamers to build two vessels of equal dimensions, have let a contract to the Cramps of Philadelphia, for three ocean greyhounds that will be even larger and more powerful than the Paris or New York. This is a contract that is certain to go to some American builder.

MAJOR E. H. RUFFNER, United States engineer in charge of river and harbor work in the Buffalo district, asked of his own account a few days ago for the views of Buffalo citizens relative to proposed changes in breakwater construction. A few more such government officials are wanted on the lakes. Such of them as have consulted the interests of the people, in whose service they are engaged, have lost nothing by their action.

St. Mary's Falls Canal Traffic in July.

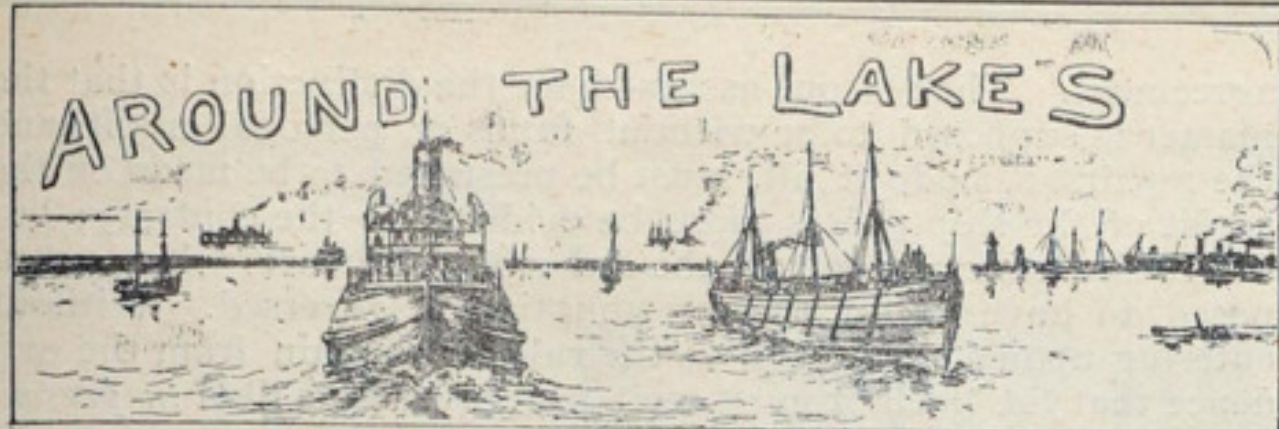
Freight passing through the St. Mary's Falls canal during the month of July aggregated 1,926,210 net tons, of which 1,326,239 tons was eastbound and 599,971 tons westbound. The traffic was divided as follows:

	Eastbound.	Westbound.
Coal		542,003 tons.
Flour	792,289 bbls.	110 bbls.
Grain		8,890 bu.
Corn	279,941 bu.	
Wheat	4,556,785 bu.	
Building stone	5,393 tons.	
Copper	10,913 tons.	
Manufactured iron		4,833 tons.
Iron, ore	932,706 tons.	
Iron, pig	4,162 tons.	
Salt		25,767 bbls.
Lumber	72,234 M feet	
Silver ore	100 tons.	
Unclassified freight	22,304 tons.	49,554 tons.
Passengers	3,319	3,425

This is more freight than has ever passed through the canal in a single month.

Official Numbers and Tonnage.

The bureau of navigation, E. C. O'Brien commissioner, assigned official numbers and passed upon the tonnage of the following lake vessels during the week ending Saturday, August 30: Steam—City of Naples, built at West Bay City, Mich., and hailing from Port Huron, Mich., 2,109.37 tons gross, 1,772.53 net, No. 126,899; Chicora, built at Detroit and hailing from Detroit, 1,122.92 tons gross, 708.15 net, No. 126,902; Buena, built at Benton Harbor, Mich., and hailing from Chicago, 16.29 tons gross, 11.44 net, No. 3,558. Sail—Shoo Fly, built at Sand Beach, Mich., and hailing from Port Huron, Mich., 6.05 tons gross, 5.75 net, No. 115,278.



The Saginaw Dredging Company, Saginaw, Mich., is building a large dipper dredge with capacity for 150 yards per hour.

Work of widening Rice's point channel has been commenced by Williams, Daugherty & Upham, of Duluth. It will require a month to complete the contract.

The light-house board has made the following appointments for lightship No. 57, stationed at Gray's reef, Lake Michigan: Keeper, M. S. Corlett; first assistant, Jacob Smith; second assistant, Wilen Wright.

Last fall the Chemung lost her rudder and shoe off Erie, and was picked up by the steamer C. S. Parnell. The matter was quietly settled a short time ago by the owners of the Parnell being paid about \$3,000.

Reported that Chicago underwriters claim that the steamer Fred Pabst, which grounded at Buffalo and again at Grassy Island, Detroit river, on her last trip up with coal, was overloaded, and will refuse to pay any claim made upon them.

It will be two weeks or more before the whaleback steamer Pathfinder and consort Sagamore, building at West Superior for Samuel Mather and others of Cleveland is ready for service. Capt. W. B. McGregor will command the Pathfinder.

It was said that the whaleback steamer Samuel Mather would break the grain cargo record out of Chicago last week. She took only 116,000 bushels of corn, however, against a record of 125,730 bushels made by the E. C. Pope last season.

Philadelphia newspapers have been predicting since the opening of lake navigation a big gain for Erie in the lake grain business, on account of the efforts of Philadelphia railways to secure the export business from the lakes by way of Erie. From the opening of navigation to Aug. 1, however, Erie had received but 7,516,000 bushels of wheat and corn to Buffalo's 49,800,000 bushels, or only 13 per cent. as against 87 per cent.

Sales of vessel property: Schooner Tokio, Ferdinand Schlesinger and others of Milwaukee to Whipple & Winman, of Detroit, \$50,000, covering also Escanaba ore charter; steamer Taylor, Isle Royal Transportation Company of Duluth to Grand Haven parties, \$7,500; tug Welcome, Henry Lay & Co. of Sandusky to Williams, Daugherty & Upham of Duluth, \$12,000; tug Lorenzo Dimick, Hand & Johnson of Buffalo to Capt. Jay Hursley of Sault Ste. Marie, \$8,000.

Retaliation in various forms is suggested as a result of the canal tolls controversy. One of the latest propositions from a Canadian newspaper calls attention to the fact that Canadian vessels are compelled to report at Cheboygan before entering Lake Michigan, which is entirely American territory, and suggests that Canada enforce a similar stoppage at Amherstburg, where United States vessels are compelled to pass through the Canadian channel between Bois Blanc island, Detroit river, and the Canadian main land.

In sending down the St. Lawrence the three light-ships which Wheeler & Co. of West Bay City have yet to deliver to officers of the light-house service at New York, Mr. Wheeler proposes to use air bags for lightening the draft in canals. Considerable expense was attached to shipping anchors, chains, etc. by rail when the first of these boats was sent to the coast several days ago. It is thought that four bags of twenty tons lifting capacity each will serve to raise the boats so as to admit of their passage through the canals with all parts of fit-out and lighting appliances aboard.

Notice to Mariners.

Major E. H. Ruffner, government engineer at Buffalo, has issued a circular giving a description of the Niagara river channel to Tonawanda. The circular refers in detail to soundings made at the lower end of Horse Shoe reef, Strawberry island and other points where extensive dredging work has been going on for a long time past. The engineer concludes that vessels drawing 15 feet, mean lake level, will strike nothing from the lake to the harbor at Tonawanda.

Running the St. Mary's River.

As had been expected vessels have begun to run the St. Mary's river both ways at night on the new government ranges. There is no doubt of the risk attached to running the river by night, but the number of boats using the ranges will undoubtedly increase with each week until the close of navigation. Masters who have covered the river so far by night say that the proposed ranges at the foot of Sugar island, which are among the extra lights recommended by Col. Ludlow and Commander Heyerman, in their plan for forty-four lights, are among the most essential aids in the entire system. The steamer Wawatam, Capt. Mooney, was the first boat to go up the river on the ranges, and the Samuel Mitchell, Capt. Wilford, was the first to come down. The Mitchell was drawing 15 feet 4 inches, and Capt. Wilford says he felt safe at all points excepting at the turn around the foot of Sugar island.

In General.

During the month of June there was moved from the lumber districts of Puget Sound 36,758,550 feet in both foreign and domestic cargoes. This is certainly a creditable showing for the new northwestern country, where so many lake men have gone to seek fortunes.

A steel stern frame casting of 9,213 pounds for the United States cruiser Marblehead, now under construction at Boston, is said to have more than fulfilled all the requirements of the navy department. It was made by the Midvale Steel Company of Philadelphia.

A report just issued by the American Iron and Steel Association shows that the increase in the production of Bessemer steel ingots in the first half of 1892 as compared with the second half of 1891 was over 13 per cent., while the increase in the production of Bessemer steel rails in the same period was over 10 per cent.

As had been expected, the American Steam Barge Company has increased the water ballast capacity of the whaleback steamer Wetmore, which has been in service on the Pacific coast since making a trip to England. It was found that the steamer suffered great damage forward when running light, on account of the spoon-shaped bow coming in contact with heavy seas. A 500-ton water ballast compartment has been added to the bow. Five masts carrying schooner sails have also been added to the Wetmore, for use mainly in case of accident to her machinery.

Trade Notes.

Smokestack black that will stick and look well is hard to find. The Walker Chemical Company, Jersey City, N. J., manufactures paint that has these qualities. They also manufacture an excellent wood preservative.

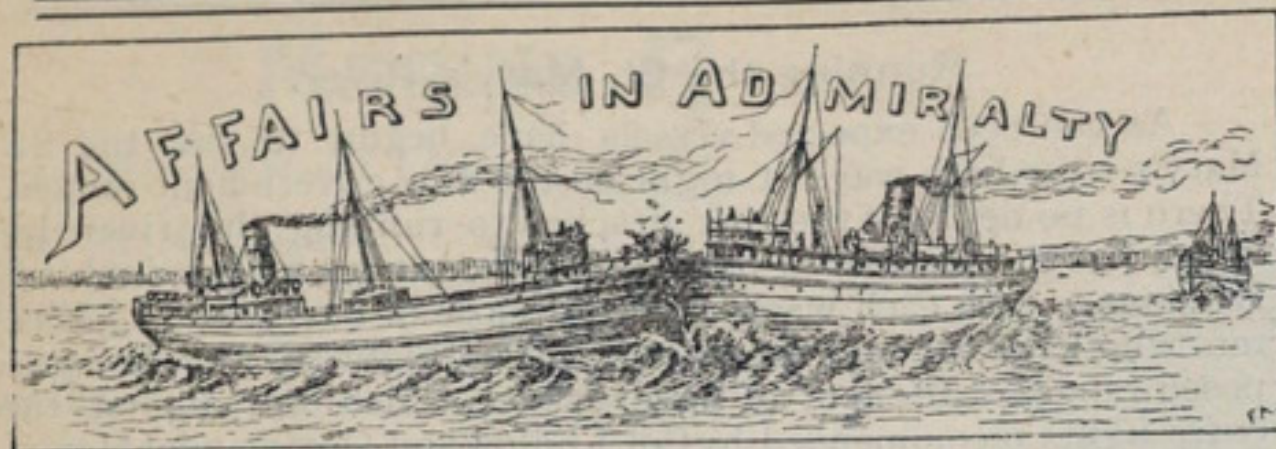
Samuel Hodge & Co., Riverside Iron Works, Detroit, have contracted with the Fisher Electric Company of that city for one of their automatic generators. The generator is to be of 60 horse power capacity and will operate six motors located on electric cranes. The machine will be of the well-known automatic type, manufactured by the Fisher company and will be equipped with all the latest improvements.

Crawley & Johnson, of Cincinnati, O., have invented a new automatic steam steering gear, which is claimed to be practically perfect. It is operated by the common wheel in the pilot house. The gear is perfectly noiseless, and located in the engine room. The wheel is turned in the ordinary way, as if steering by hand, and the rudder follows, moved by steam pressure. When the wheel ceases to revolve the rudder instantly stops, and is held in that position, no matter what circumstances may arise. A man steering a boat equipped with the gear would never suspect the presence of a power apparatus, but would find that the wheel revolved as easily as if the tiller ropes were taken off and he was simply moving the wheel on its axis, no matter what pressure there might be on the rudder. The manufacturers have a special pattern for tugs, which is very light and takes little space.

Wrecks and Heavy Losses.

The small steamer Remora, burned to the water's edge at St. Ignace on Wednesday, was valued at \$12,000 and insured for \$5,000.

Although the sinking of the Canadian passenger steamer Princess Louise near Toronto last week will result in almost a total loss of the boat, an effort will undoubtedly be made to float her. Her cabins are partly out of water.



A libel brought by the Herreshoff Manufacturing Company, famous yacht builders of Bristol, R. I., against the steam yacht *Now Then*, brings out a decision from United States District Judge Wales that may well be noted by other builders who engage in the business of making repairs. J. E. Addicks bought the yacht from the Herreshoffs, causing the bill of sale to be made out to his wife, and changing the home port of the yacht to Wilmington, Del. Later he sent the yacht to Bristol for repairs to her boiler, for which he refused pay on a bill being presented, claiming that the company had warranted the boiler for one year. Without paying any attention to the claim of the boiler being warranted, the court dismissed the libel with a ruling of which the following is a summary: 'If necessary repairs and materials are made and furnished to a vessel in a port other than her home port, the presumption is that they are made and furnished on the credit of the vessel, unless the contrary appears from the evidence in the case. Credit is presumed to be given to a vessel only when repairs are made under such circumstances on the orders of the master. When repairs are made on the orders of the owner the presumption of credit to the vessel does not arise, and in that case a lien will not exist except by express contract of the parties. In other words, when the work is done by the order of the master a lien is implied, but for work done by the order of the owner no lien will exist unless provided by

agreement. The reasons assigned for the distinction is that the master is supposed to be without funds or personal credit, and the repairs, if made at all, must be presumed to be made on the credit of the ship unless there be evidence to the contrary; but where the work is done on the order of the owner, who is supposed to have credit, the presumption is reversed. Without entering upon a discussion of the rules it is plain from the evidence that the libelant must seek to recover by a libel *in personam*, or by an action at law.

A salvage case of considerable interest on account of the large award granted by the court, was recently decided by Judge Locke, of the United States district court, southern district of Florida. The steamer *Tregurno* went aground in December last on the Florida coast, and was without assistance for three days, when two small vessels reached her. They at once got an anchor and heavy chains into deep water, but before they could make fast night came on with a heavy storm, during which the steamer was driven onto a rocky bottom. Other vessels arrived within the next two days, when there were in all fifteen of them with 200 men, but their aggregate tonnage was only 489 tons. They were also joined by a small wrecking schooner. The whole force was engaged twenty-five days in taking out the cargo of cotton and carrying it to Key West, a distance of 158 miles, a revenue cutter assisting by towing some of the vessels two trips. They saved almost the entire cargo. Finally a wrecking vessel arrived from New York, and though her services were not absolutely necessary they were accepted, and the steamer was got off and taken to Key West. She was appraised at \$90,000 and her cargo at \$115,000. The court held that 25 per cent. would be proper compensation for the whole service, but in view of the aid rendered by the revenue cutter and the New York vessel, for which the latter was compensated by the claimants, there should be allowed but 22½ per cent.

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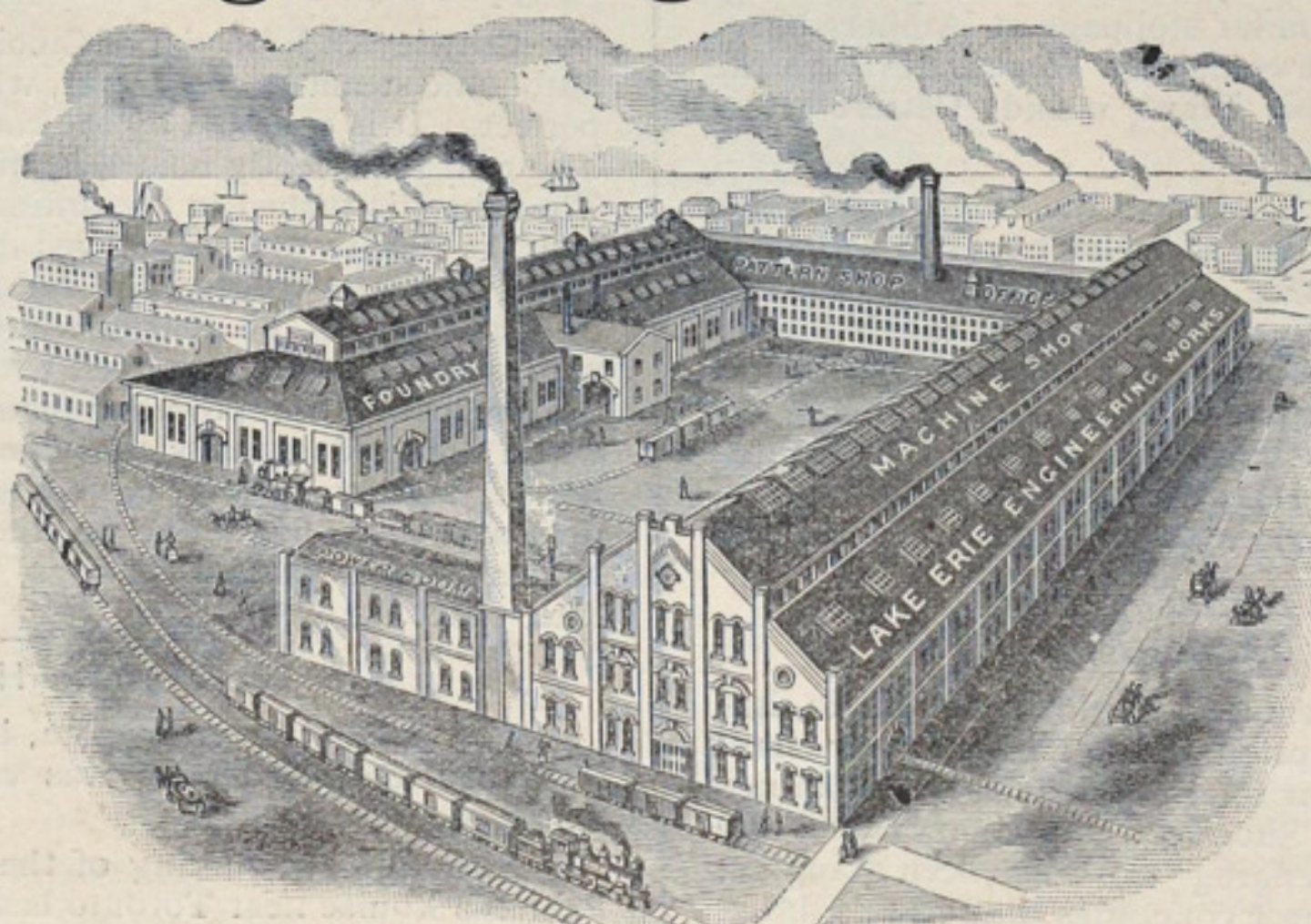
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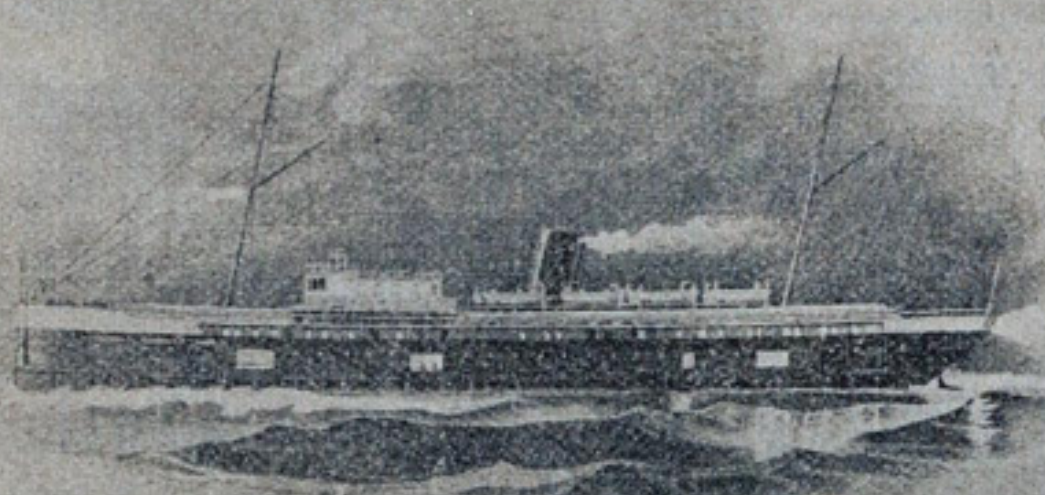
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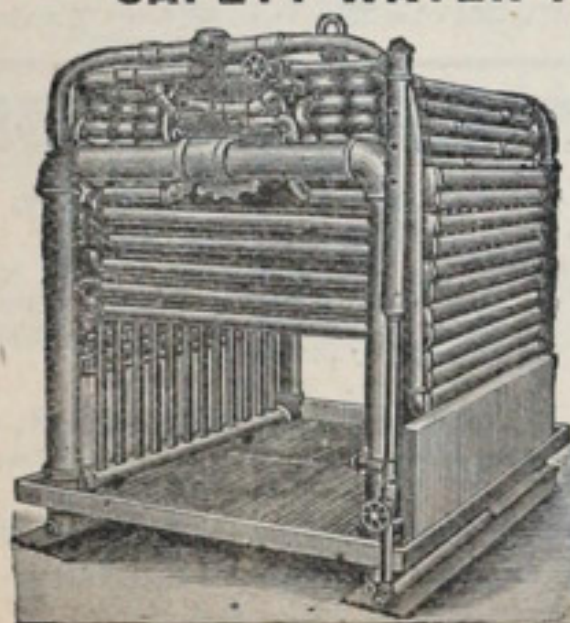
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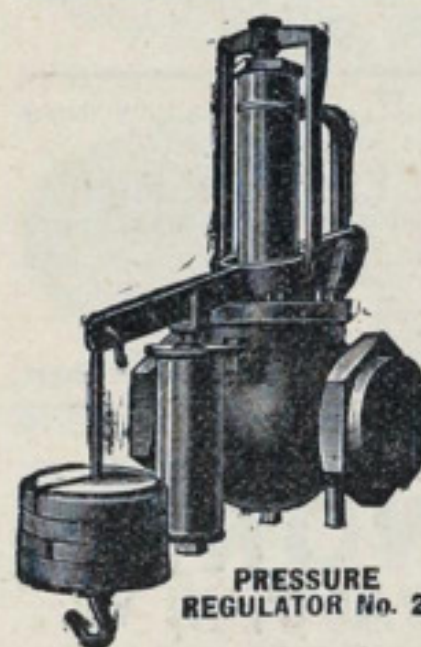
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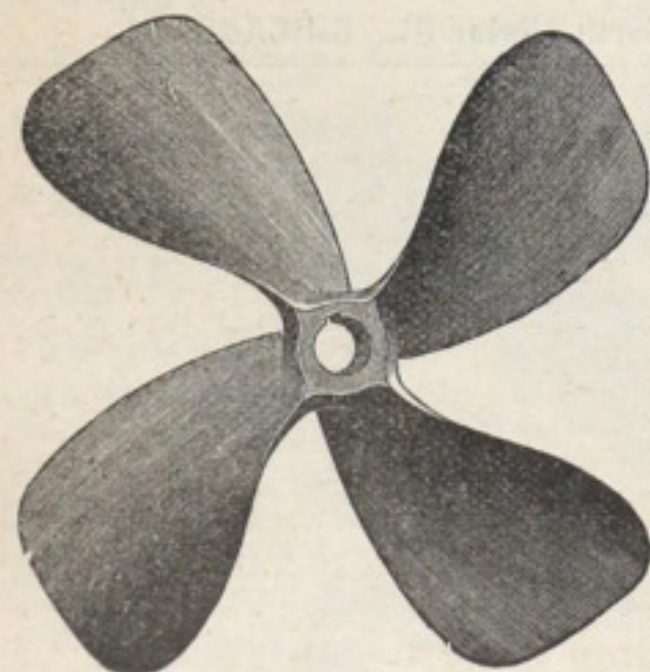
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Milwaukee street, Milwaukee, Wis., Aug. 4, 1892. Sealed proposals for improving Kewaunee harbor, Wis., by the construction of 550 feet, more or less, of pile pier, will be received at this office until 12 o'clock noon, Aug. 20, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. JAMES F. GREGORY, Major of Engineers, U. S. A.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for blasting and removing 2,000 cubic yards, more or less, of slate rock from a ledge near the State Reform School Dock in Otter Creek, Vt., will be received at this office until 10 A. M., Sept. 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. 11-18-1.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for dredging 21,000 cubic yards, more or less, of clay, sand, mud, and bowlders, from Great Chazy River, N. Y., will be received at this office, until 10 A. M., Sept. 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. 11-18-1.

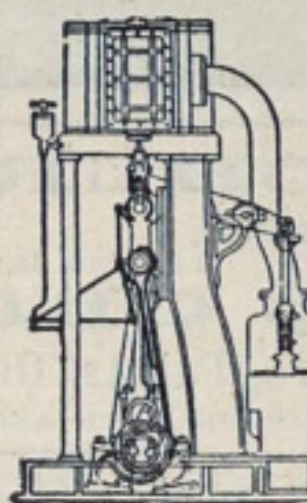
UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for dredging 92,000 cubic yards, more or less, from the Narrows of Lake Champlain, N. Y., will be received at this office until 10 A. M., Sept. 8, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office. 11-18-1.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for furnishing 7,000 cubic yards of rubble stone; 2,000 cubic yards of large stone, 1 to 3 tons weight, and constructing 135 linear feet of extension to breakwater at Rouse Point, N. Y., will be received at this office until 10 A. M., Sept. 9, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office.

UNITED STATES ENGINEER OFFICE, Burlington, Vt., August 8, 1892. Sealed proposals for blasting and dredging 72,000 cubic yards, more or less, of hard pan and bowlders from Ogdensburg Harbor, N. Y., will be received at this office until 10 A. M., Sept. 9, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office.

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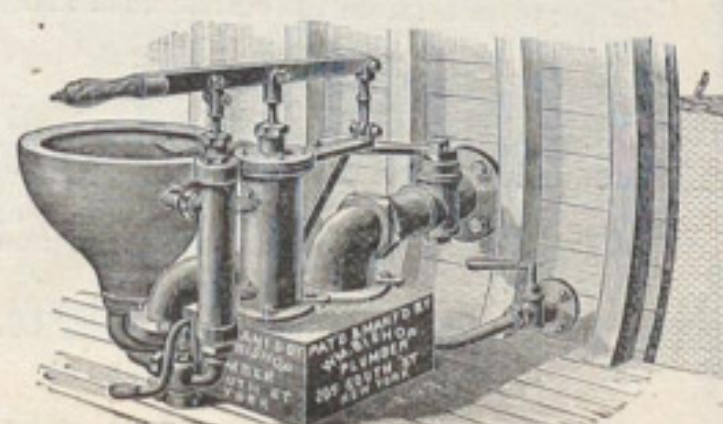
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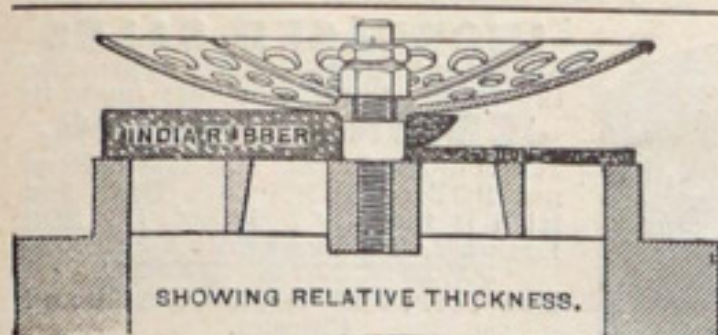
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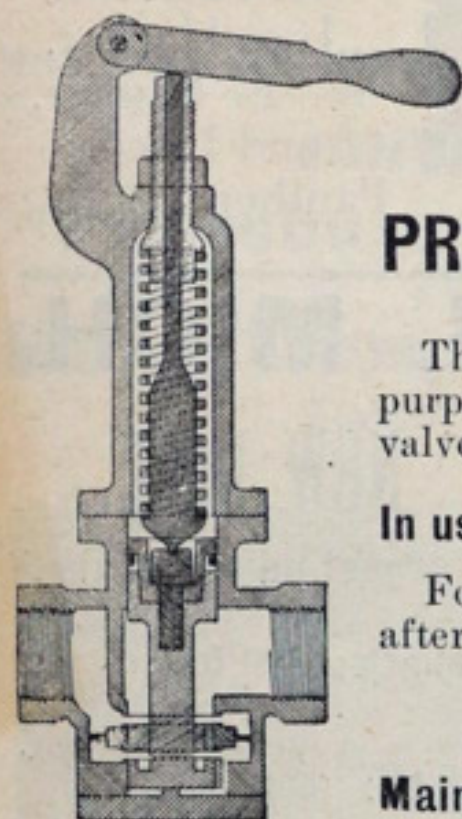
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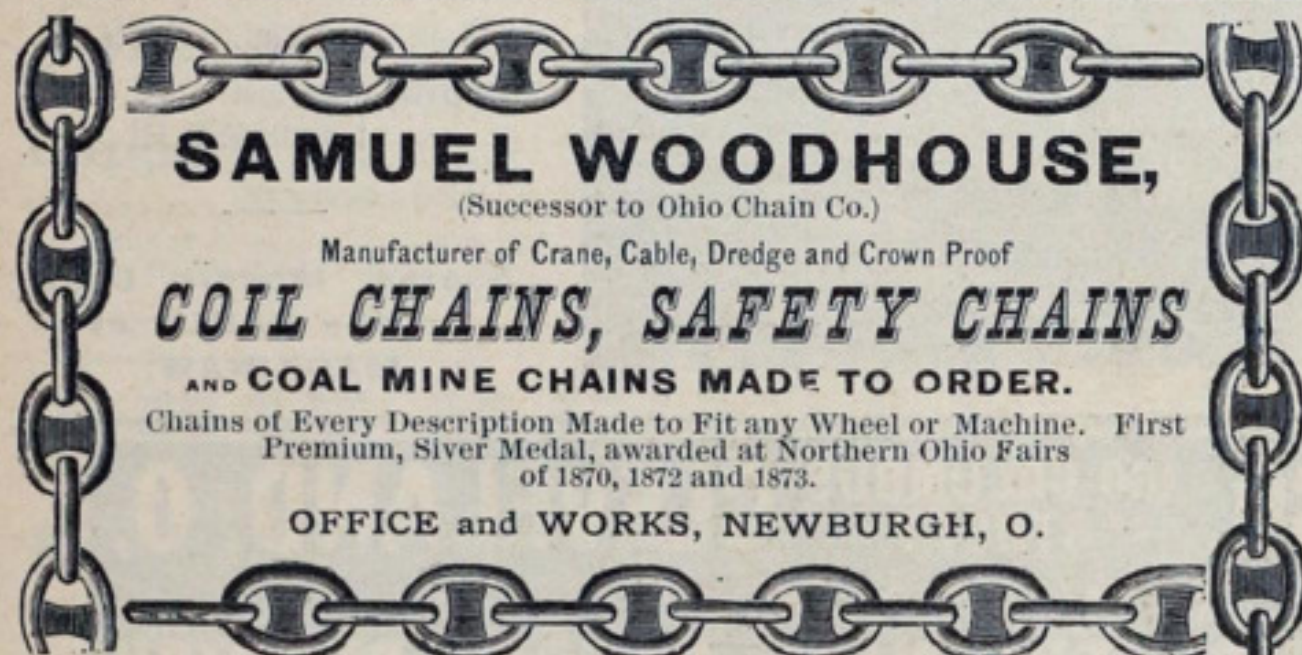
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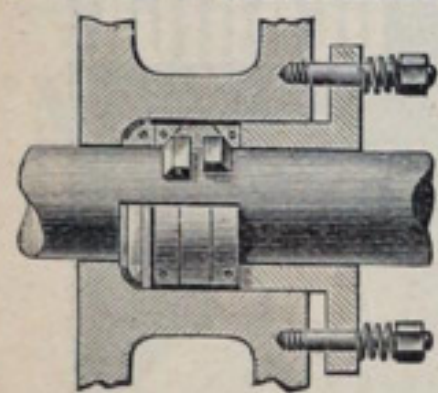
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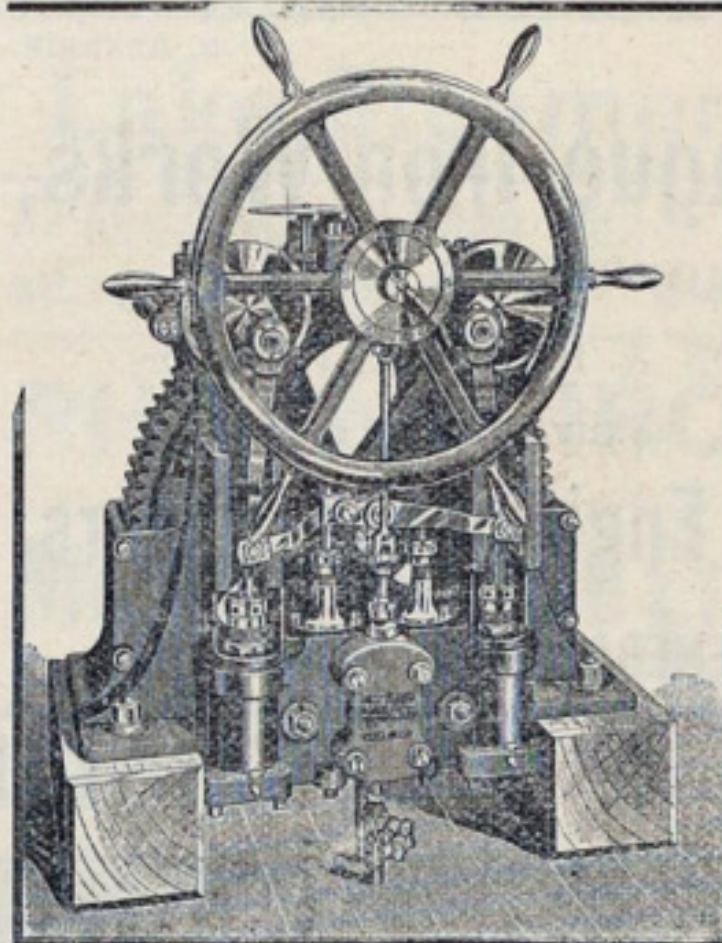
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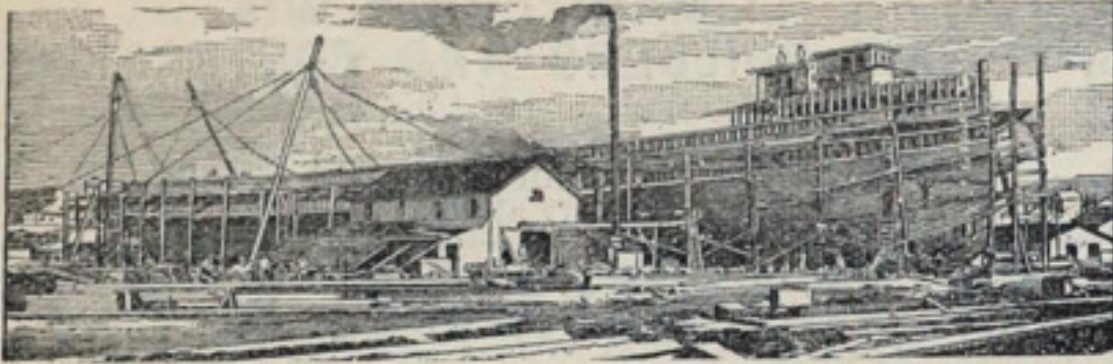
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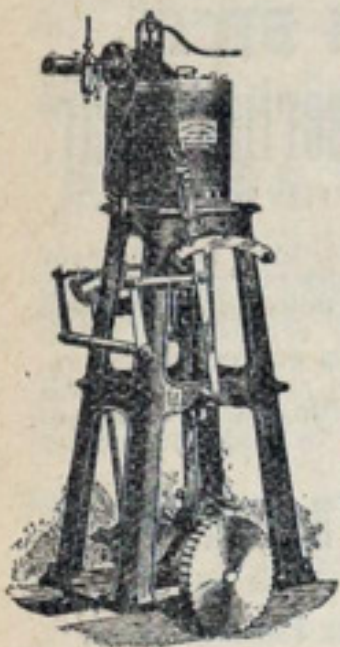
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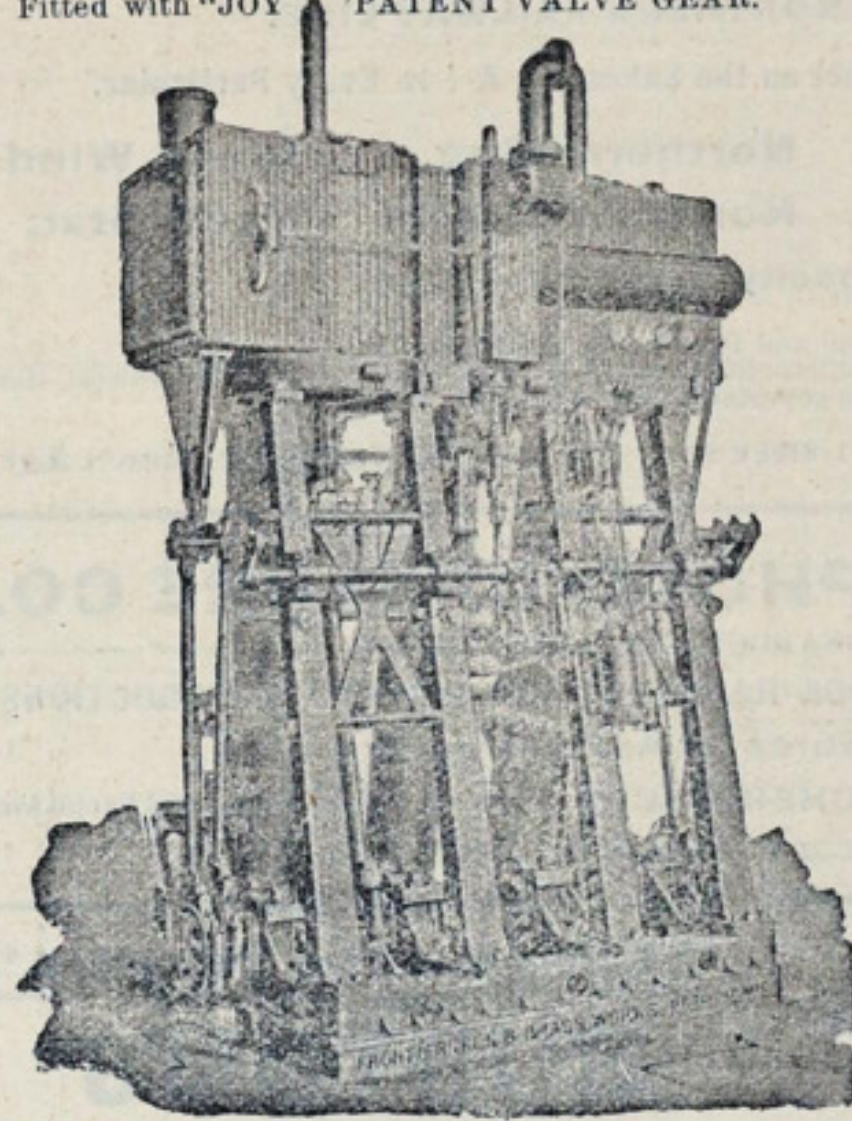
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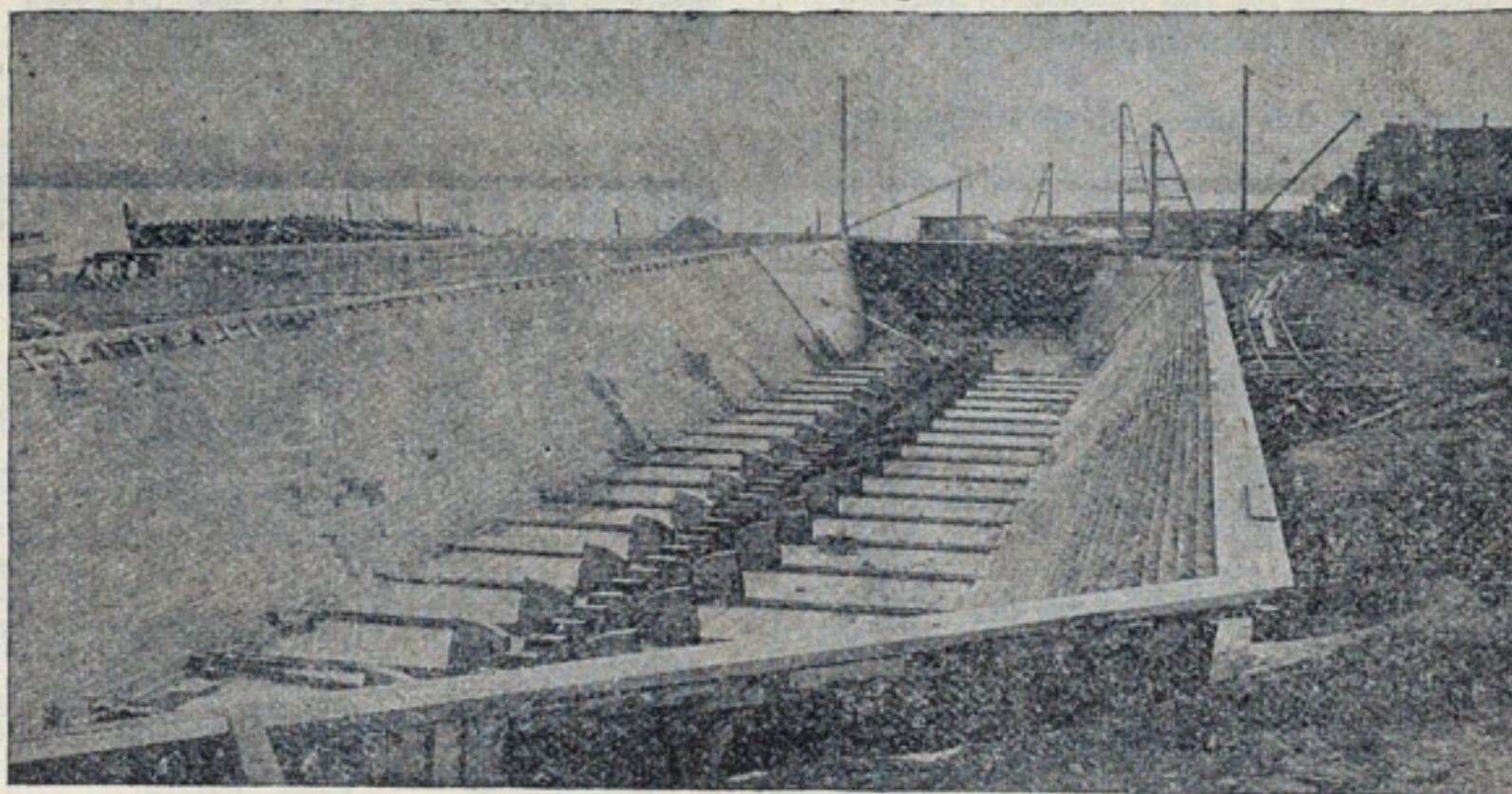
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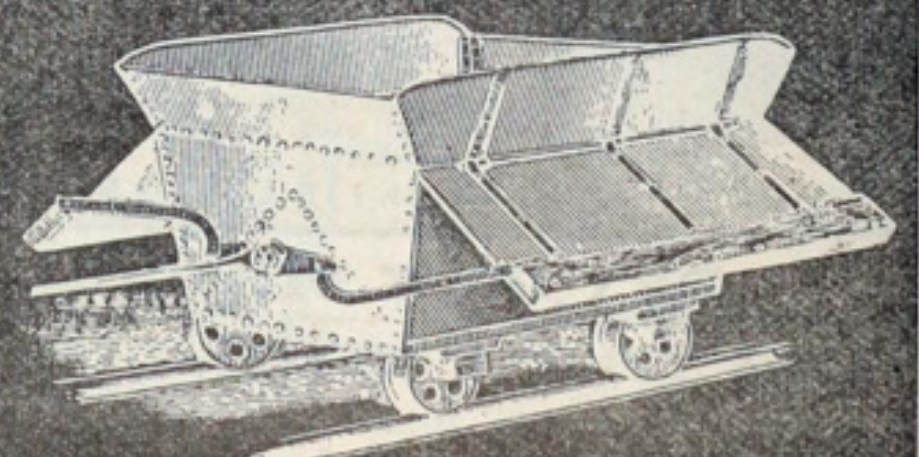
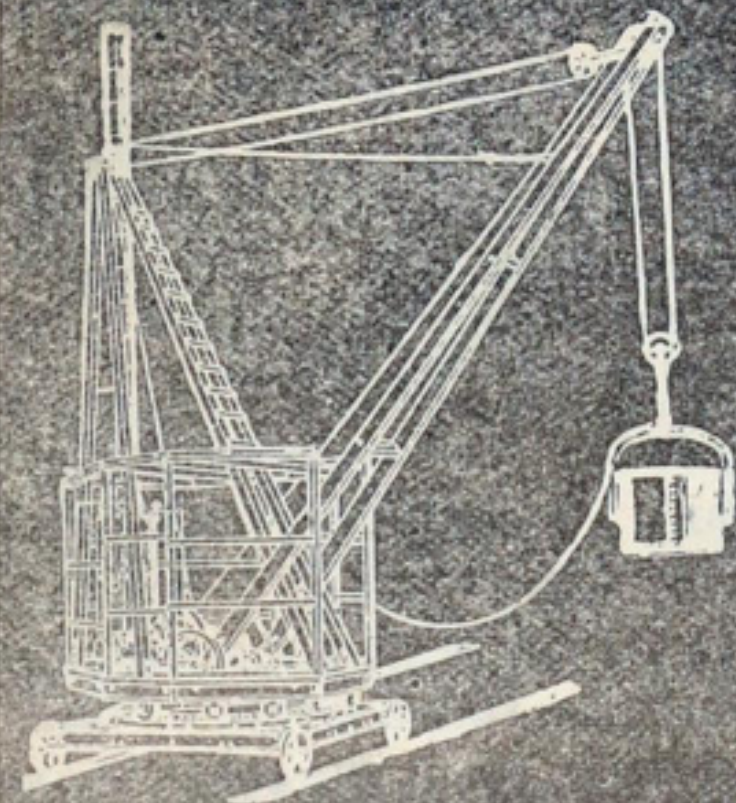
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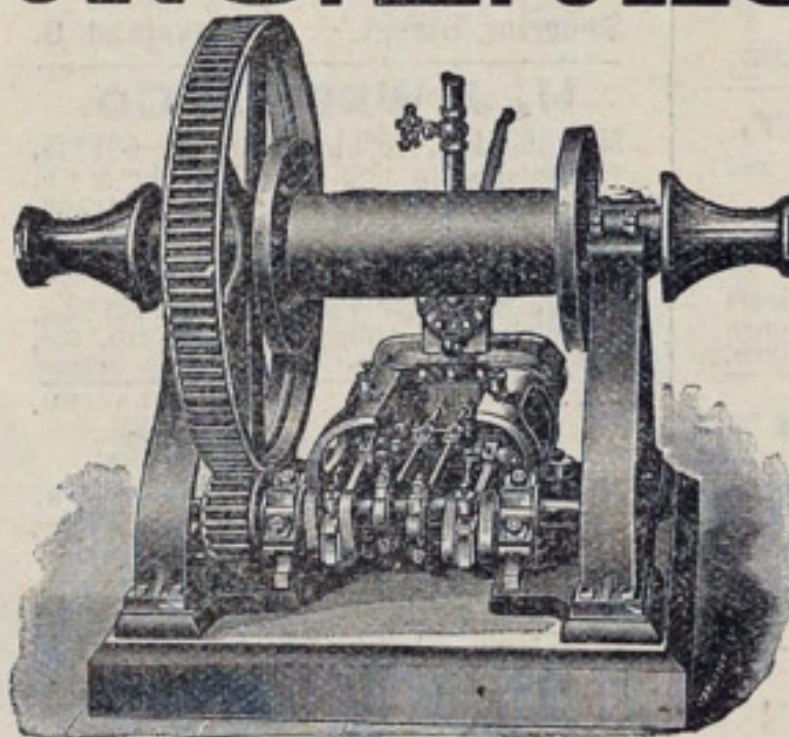
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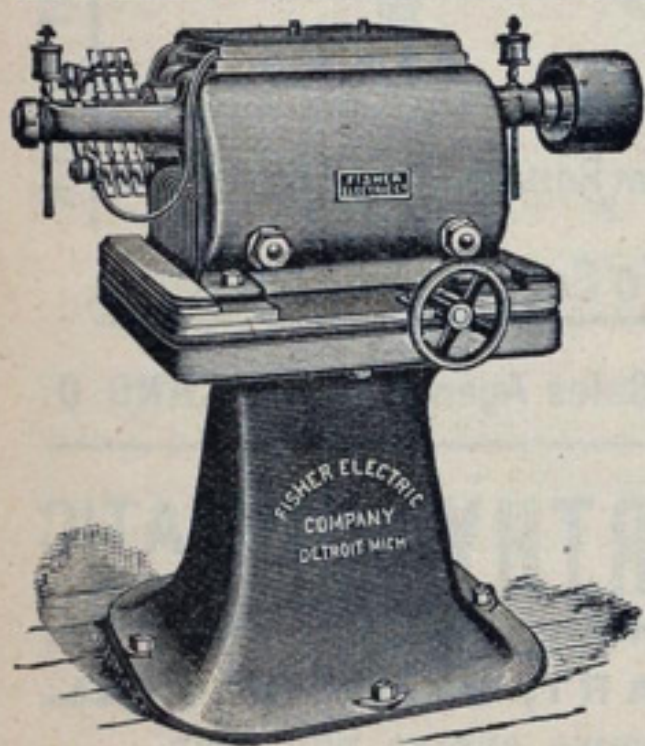
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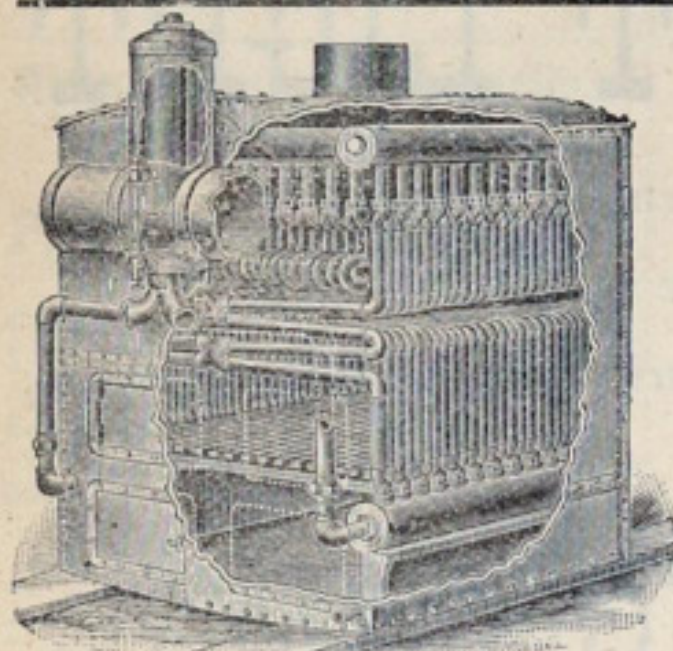
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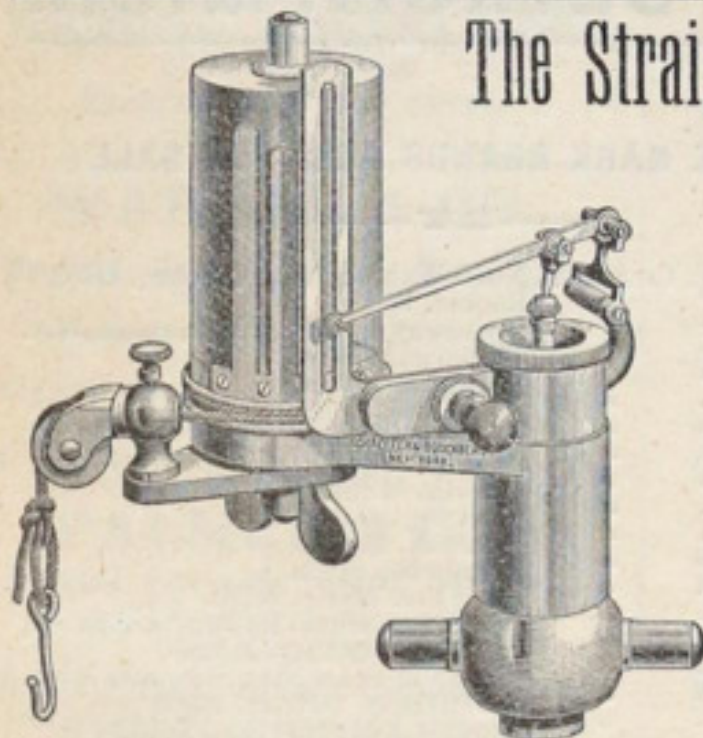
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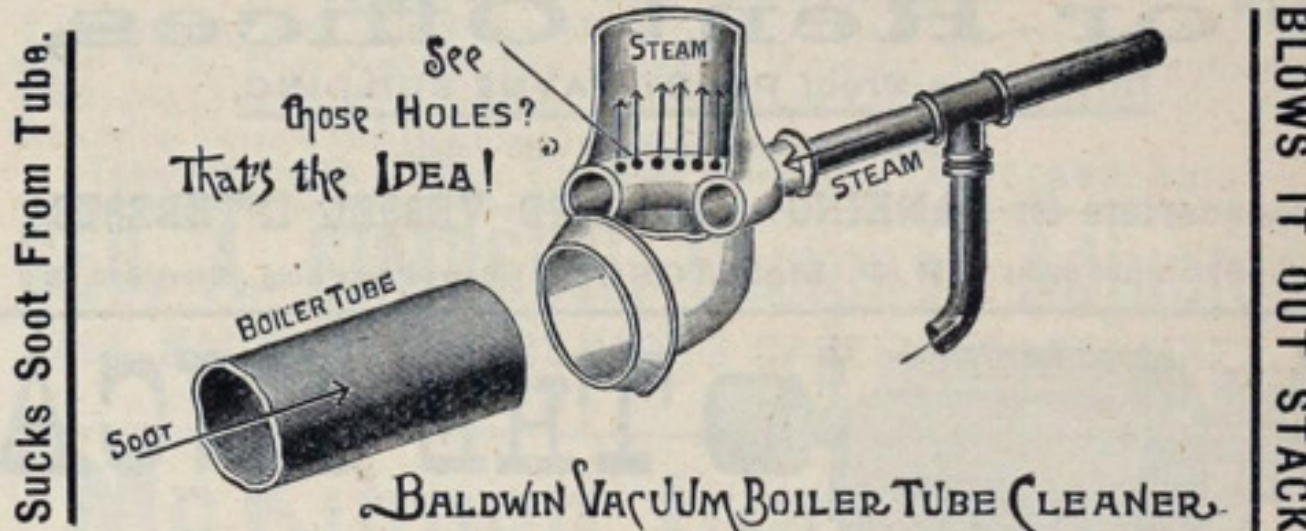
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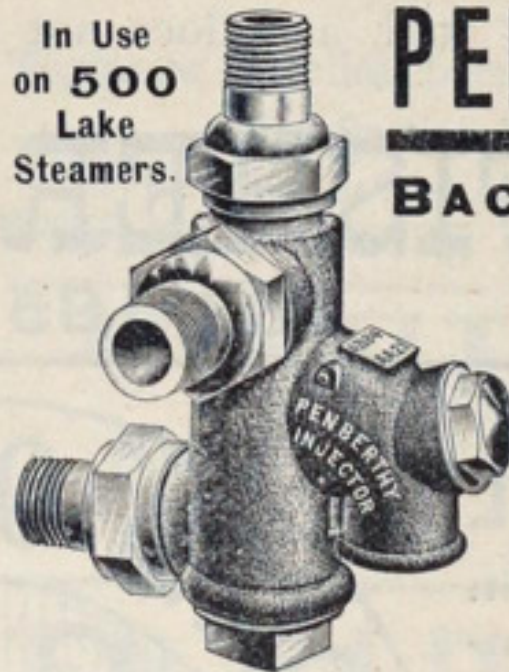
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